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Chapter 1 Overview

1.1 Background

With network development, how to operate and manage the existing broadband networks, make full use of and profit from networks become the new challenges to broadband operators.

In the process of informatization and automatization, many enterprises have invested a lot in constructing their intranets, thus improving efficiency. However, these intranets also put forward new requirements of information management, hierarchical user management, dynamic address allocation and anti-hacker protection.

With the increasing popularity of network applications, emerging services challenge the old service management systems. Resource sharing and delivery, and unlimited network access bring on security vulnerability.

To meet the operation, management, and security requirements arising in the present intranets, operators and enterprises demand a comprehensive network solution besides communication devices. Note that the solution must be coordinate and compatible with the existing networks.

Huawei-3Com launches the comprehensive access management server (CAMS). This system, networking with other devices, meets these urgent demands appropriately.

Figure 1-1 depicts the deployment of CAMS on the network.

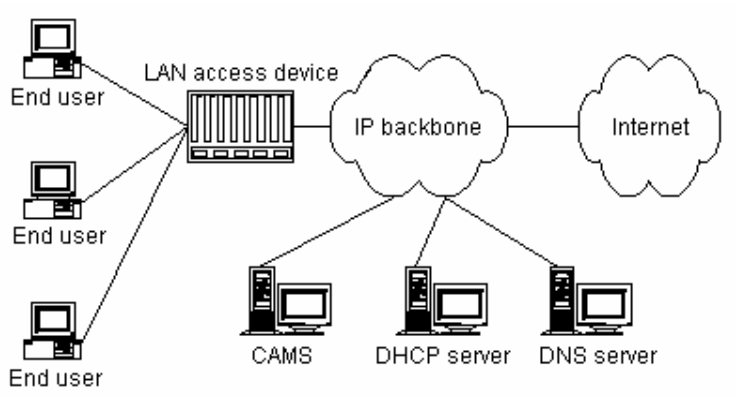


Figure 1-1 Deployment of CAMS on the network

As the service management core on the network, CAMS can be deployed, together with LAN access devices, to complete the authentication, authorization, accounting (AAA) and right management on end users. This implements manageable and operable networks, and secures network and user information.

1.2 Product Features

The main features of CAMS are given below.

- CAMS adopts the “platform + components” architecture, as shown in Figure 1-2. The components can be loaded dynamically. Thus, CAMS has a fine scalability.

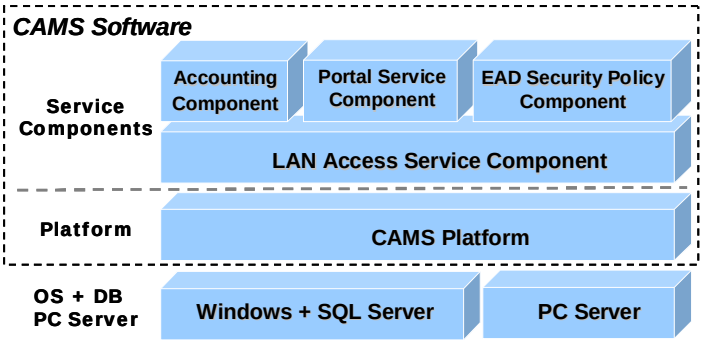


Figure 1-2 CAMS system architecture

- CAMS is based on TCP/IP, and supports RADIUS and the extended RADIUS developed by Huawei Technologies.
- CAMS supports multiple authentication modes: PPPoE (Point to Point Protocol over Ethernet), IEEE 802.1x, and "DHCP (Dynamic Host Configuration Protocol) + WEB".
- CAMS employs the "user + service" operation mode, allowing users to utilize services flexibly.
- CAMS provides multiple accounting templates and supports accounting by duration and by traffic, thus making accounting flexible.
- CAMS provides powerful log functions, allowing you to query and analyze various logs.
- CAMS provides enhanced security guarantee. It encrypts interaction packets and sets the operators' rights flexibly to ensure that the system is running securely.
- CAMS provides self services for end users, such as querying bills and balances, and changing password.
- CAMS provides satisfactory online helps.

- The server adopts the platform of “PC server + Windows + SQL Server” and thus is cost-effective; the client only needs browsers, eliminating the need to install software.
- CAMS supports redundant arrays of independent disks (RAID) and database backup.

1.3 Product Functions

Seamless cooperation with telecommunication products of Huawei-3Com enables CAMS to support authentication, accounting, and user management through various devices. CAMS implements the following primary functions.

1) Comprehensive access control

As its name implies, CAMS can function as the network access control server for multiple network devices such as H3C series Ethernet switches and routers. It implements multiple types of network accesses (including PPPoE, IEEE 802.1x and Portal), and performs AAA and statistics on users for different services.

CAMS is able to accommodate constantly growing demands for authentication, accounting, and management by upgrading service components dynamically.

2) Policy management

CAMS supports customizing policies flexibly to meet various network access, accounting and discount demands, and thus facilitate management on different users.

3) Service management

Besides traditional services such as account users and card users, CAMS supports new services including blacklist, user attribute binding, broadband access, “DHCP + Web” authentication and so on.

In addition, CAMS associates network traffic with end users, and thus breaks the limit of traditional single accounting mode. On this basis, it provides more flexible accounting policies, and more detailed analysis and decision-making information for access manufacturers, enterprise networks and intelligent communities. Other supported functions include information statistics, call detail record (CDR) statistics and export, and customized interfaces.

4) End user self service

End users can visit the self service website to check their network utilization information and manage the personal information. For example, they can query the overall and detailed information of access duration, traffic, and fee, as well as modify the login password.

5) LDAP server binding

CAMS can export data such as account information saved on the LDAP server, and thus provides services integrating CAMS authentication and LDAP authentication. CAMS also provides excellent compatibility with existing authentication system on the network.

1.4 Networking

LAN access services for campus and community networks are implemented through Ethernet switches. The typical networking diagram is shown in Figure 1-1. CAMS mainly uses 802.1x to perform authentication and accounting on users on those networks.

1.5 Backing Up Data

You can back up the CAMS system data in the following ways:

- Using disks to implement RAID1 to avoid data loss in case of single disk failure.
- Having tape device so that the text file exported from the database can be saved to the device. To export the file from the database, you can execute the database backup command periodically or use the data exporting function on CAMS. The file saved to the device helps CAMS to restore the settings in case of faults.
- Employing automatic backup on CAMS to implement database backup. A full database backup is executed daily. Note that the system only saves the backup data within the latest week.

To ensure enough disk space and availability of other storage devices, CAMS cleans up files periodically, mainly including system data, database data, and system logs.

1.6 Requirements

1.6.1 System Software Requirements

Windows operating system: Windows 2000 Server or Windows Server 2003.

Database: SQL Server 2000

1.6.2 Client Requirements

- Windows 98 or later
- Microsoft Internet Explorer (IE) 5.5 or later

1.6.3 Network Requirements

To secure CAMS, you can place it behind the firewall that filters illegitimate packets, or set special routes to prohibit external devices from accessing CAMS directly.

Chapter 2 Service Operations

2.1 Introduction to CAMS

2.1.1 Login and Logout

Microsoft IE 5.5 or later is required for logging in CAMS configuration console and the subsequent sections take the IE 5.5 for example to introduce CAMS configurations.

I. Login

Start IE, and enter the IP address and port number of CAMS configuration console. The default port number for CAMS is 80, so you can enter the address like **http://10.110.45.159/cams** without the port number. For other port such as 8180, you must enter the address like **http://10.110.45.159:8180/cams** to enter the login window of CAMS configuration console, as shown in Figure 2-1. You can perform configurations only after passing the authentication with correct username and password.

& Note:

If you access the CAMS configuration console using hypertext transfer protocol secure (HTTPS), for example, through https://10.110.45.159/cams, the [Security Alert] dialog box pops up before the CAMS configuration console login page appears. Click <Yes> to continue.

Figure 2-1 Login page of CAMS configuration console

Parameter description:

User Name: Operator's username. After CAMS is installed, the default operator's username is "ADMIN" and is not case sensitive.

Password: Operator's login password. The password contains 1 to 16 visible characters and is case sensitive. The default password of the operator "ADMIN" is "Admin".

& Note:

Although the operator “ADMIN” cannot be deleted, you can select [Operator Management/Change Password] to modify its password.

II. Logout

After logging in, you can click <Logout> at the top right corner to log out of the CAMS configuration console.

Caution:

- When the operator’s idle time reaches the threshold defined in the [Operator Max. Idle Time] field, the operator will log out of the CAMS configuration console automatically. For this parameter’s description, refer to section 2.7.7 I. “System Configuration”.
- If the access control list (ACL) is configured, an operator who uses an IP address prohibited in the ACL will be refused to log in.

2.1.2 CAMS Configuration Console Page

Figure 2-2 illustrates the CAMS configuration console page.

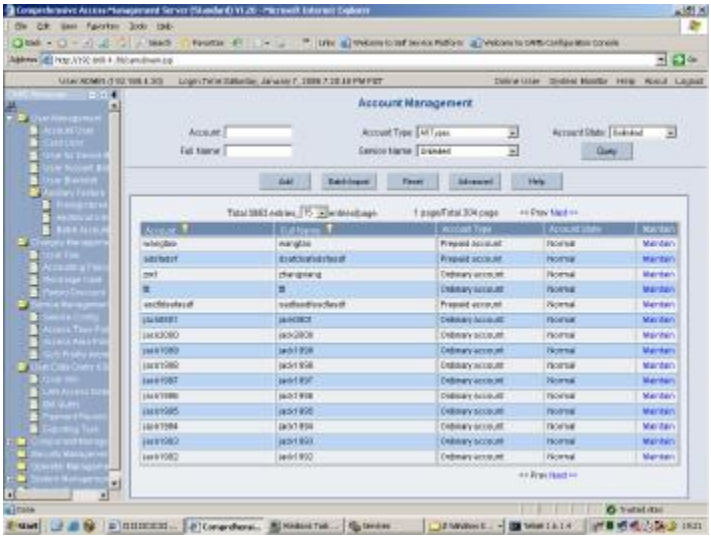


Figure 2-2 CAMS configuration console page

The CAMS configuration console page consists of six parts:

- URL: Displays the address of CAMS that you logged in.
- Navigation tree: Includes the menu items for all the system functions. Select a menu item and the corresponding operation page will appear in the right pane.
- Status bar: Displays related information of the login operator.
- Tool bar: Contains the common links such as: Online User, System Monitor, Help, About, and Logout.
- Query section: Allows you to query the information of the current operation.

- Operate section: Contains function buttons and links related to the current operation.

& Note:

Clicking <Help> in the tool bar brings up the system help information, while clicking <Help> on a page brings up help information specific to the current function.

2.2 User Management

CAMS provides the operation mode of “user + services”. A user, either an account user or a card user, has basic information such as balance. Services, which decide how the user can get access to the network, contain predefined accounting policies, binding information and so on.

A user can apply for more than one service with different suffixes. The CAMS administrator manages services uniformly.

User management involves account management, card number management, user for device management, user account batch operations, user blacklist management and auxiliary feature management (preregistered user management, user additional information management and batch account file management).

2.2.1 Account Management

Select [User Management/Account User] to enter the [Account Management] page, as shown in Figure 2-3.

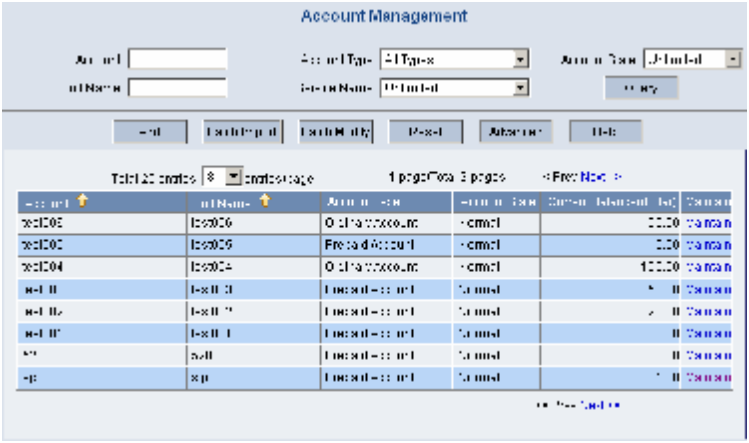


Figure 2-3 Account Management

The [Account Management] page consists of three parts from top to bottom.

In the upper part, input proper parameters in the [Account] and [Full Name] fields, select proper parameters from the Account Type, Service Name, and Account State drop-down lists, and click <Query>. The account users that satisfy the query conditions will be listed in the lower part of the page. Note that the [Account] and [Full Name] fields support backward fuzzy matching. For example, if you input **wan** in the [Account] field and click <Query>, all account users whose account names start with “wan” will be listed.

The account user list is displayed in the lower part of the page and you can click <Prev> and <Next> to switch between pages. A drop-down list is present at the upper left corner of the list, allowing you to select how many items to be displayed on one page. The

default number is 15. By clicking or of the column headers, you can sort the items in ascending or descending order.

Above the user list and just in the middle part of the window, some buttons are provided for different functions. You can click <Help> to view the CAMS online help on a pop-up page, or click <Reset> to restore the initial page by clearing all parameters you have inputted. <Help> and <Reset> are common buttons in CAMS windows.

The layout style of the [Account Management] page is common for CAMS windows. For similar interfaces in the later sections, the layout description will not be repeated.

Operations involved in account management are: adding an account, batch import, batch modification, maintaining an account, and advanced query.

I. Add an account user

Click <Add> to enter the [Add Account] page shown in Figure 2-4.

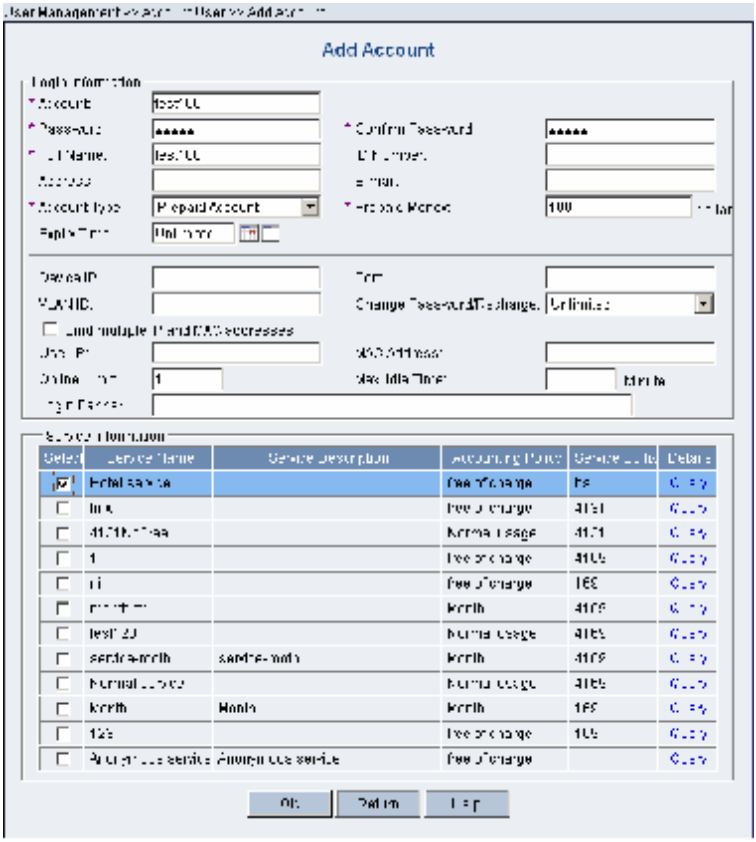


Figure 2-4 Add Account

Account user adding requires three kinds of information: login information, additional information and service information, corresponding to the three areas on the page.

- Parameters in the [Login Information] area are available for any user. You can click <Help> at the bottom of the page to view description of the parameters.

- The [Additional Information] area is present only when any additional information item is available. Besides, the parameters vary based on the existing items, which can be set on the [User Additional Information Management] page displayed when you select [User Management/Auxiliary Feature/Additional Information]. For related description, refer to section 2.2.7 “Auxiliary Feature-Additional Information Management”.
- The [Service Information] area lists all services (added after you select [Service Management/Service Config]) available for the user to apply for. You can click <Query> of a specific service to view its details.

& Note:

Parameters with a * symbol at the start are mandatory.

After inputting and selecting proper parameters, click <OK>. If the operation succeeds, the [Operation Succeeded] page appears. Click <Print>, and the [Account User Info] dialog box appears, as shown in Figure 2-5.

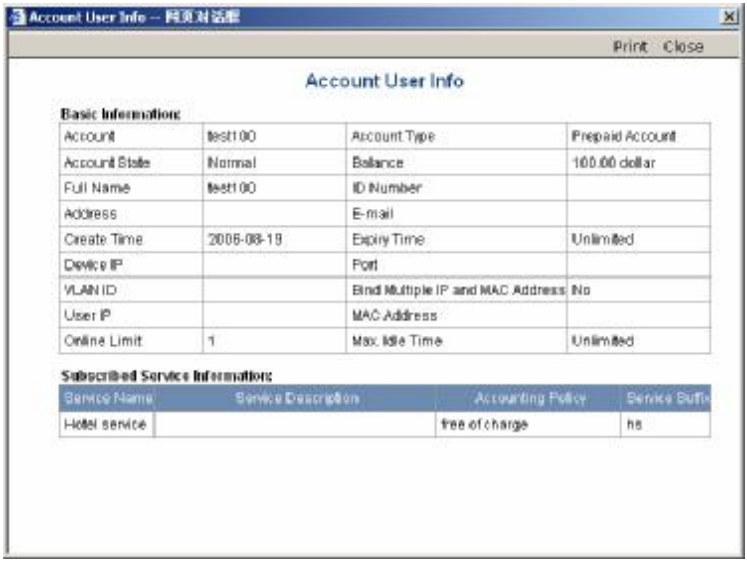

Account User Info -- 网页对话框
Print Close
Account User Info
Basic Information
Account test100 Account Type Prepaid Account
Account State Normal Balance 100.00 dollar
Full Name test100 ID Number
Address E-mail
Create Time 2006-08-18 Expiry Time Unlimited
Device IP Port
VLAN ID Bind Multiple IP and MAC Address No
User IP MAC Address
Online Limit 1 Max Idle Time Unlimited
Subscribed Service Information
Service Name Service Description Accounting Policy Service Suffix
Hotel service free of charge hs

Figure 2-5 Account User Info

The basic information, additional information and subscribed service of the new account user are displayed. You can click <Print> to output the information to a printer.

II. Batch import account users

The [Account Management] page provides the batch account user import function, allowing the system to add a group of account users by reading account data from a text file of the specific format.

Batch import operations involve selecting the batch account file, matching the user data and applying for services. CAMS adds batch imported account users in the similar processing method as that of adding an account user.

1) Set the batch account file

Batch account file settings includes [Batch Account File] and [File Column Separator], which are on the [Batch Account File] page displayed after you click <Batch Import> on the [Account Management] page.

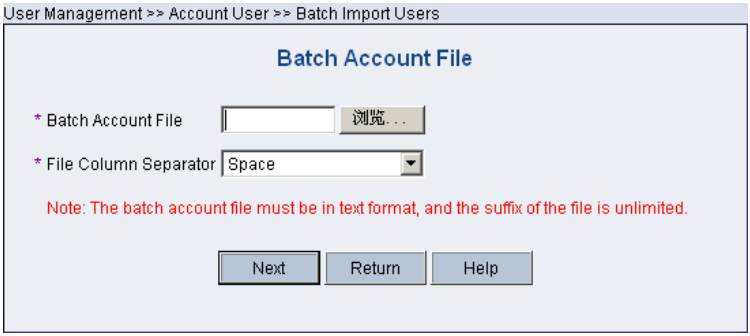

User Management >> Account User >> Batch Import Users
Batch Account File
* Batch Account File
浏览...
* File Column Separator
Space
Note: The batch account file must be in text format, and the suffix of the file is unlimited.
Next
Return
Help

Figure 2-6 Batch Account File

The following is the batch account file for importing accounts of students living in building 12 on a campus. The file uses ";" as the separator, and you can adopt its format for your configuration.

Account Password Full Name ID Number Address…

02030101;030101;02030101;02030101;12…

02030102;030102;02030102;02030102;12…

…

As shown in the batch account file, each column corresponds to a parameter, including Account, Password, Full Name, ID Number and Address. You can add other parameters as needed, such as Device IP, User IP, Additional Information and so on.

2) Batch import accounts

After selecting the batch account file and the separator, click <Next> to enter the [Batch Import] page, as shown in Figure 2-7.

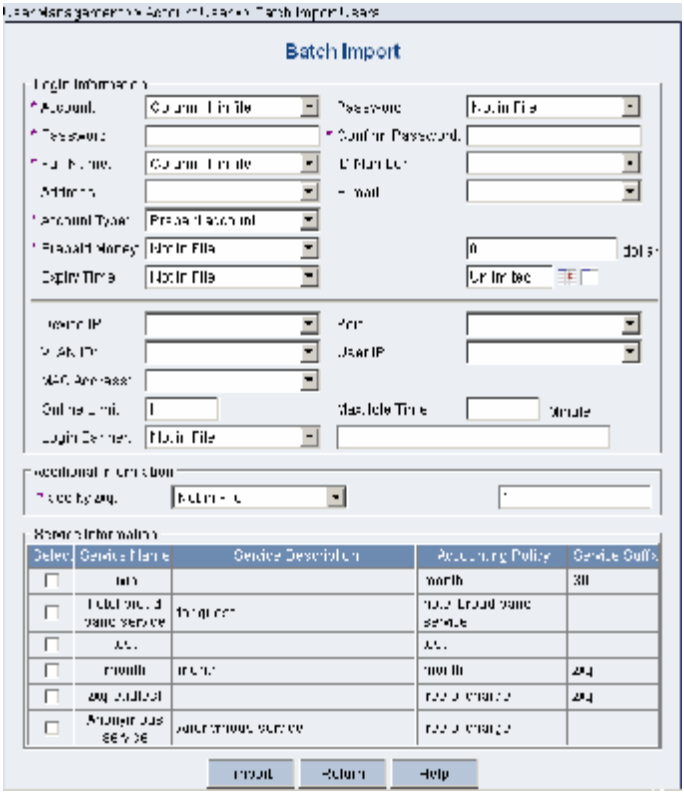


Figure 2-7 Batch Import

Parameters on this page are the same as those for adding an account user. However, values of some parameters on the [Batch Import] page are read from specific columns of the batch account file, instead of inputted manually. These parameters fall into the three kinds:

- Must be read from the file: [Account], [Full Name], [ID Number], [Address], [Email] and so on.
- Can be specified to read from the file: [Password], [Prepaid Money] and all parameters in the [Additional Information] area can be configured to read from specified columns in the file. For any of them, you can also select **Not in File** from the drop-down list and then set it manually.
- Cannot be read from the file: [Account Type], [Online Limit], [Max. Idle Time] and so on can only be set manually.

After setting account information and selecting services, click <Import>, and the [Account Batch Import Information] dialog box pops up, prompting the import process. As the import completes, the [Operation succeeded] page appears.

Caution:

- The batch account file must be text files, regardless of the file suffix.
- Each column of values imported from the file must follow the specific format or range required by CAMS. Otherwise, the import will fail or the generated account cannot work normally. Therefore, be sure to check the correctness of the data in the batch account file before importing them.

III. Batch modify account users

This function is used to modify related information of the existing accounts in CAMS.

On the [Account Management] page, click <Batch Modify> to enter the [Batch Account File] page, as shown in Figure 2-8.

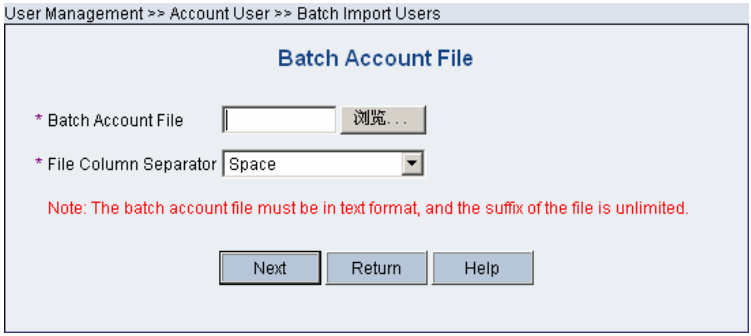

User Management >> Account User >> Batch Import Users
Batch Account File
* Batch Account File
浏览...
* File Column Separator
Space
Note: The batch account file must be in text format, and the suffix of the file is unlimited.
Next
Return
Help

Figure 2-8 Batch Account File

For the specific descriptions on the batch account file, refer to the “Batch import account users” part in section 2.2.1 II. 1)”Set the batch account file”.

Select proper parameters, and click <Next> to enter the [Batch Modify Account] page, as shown in Figure 2-9.

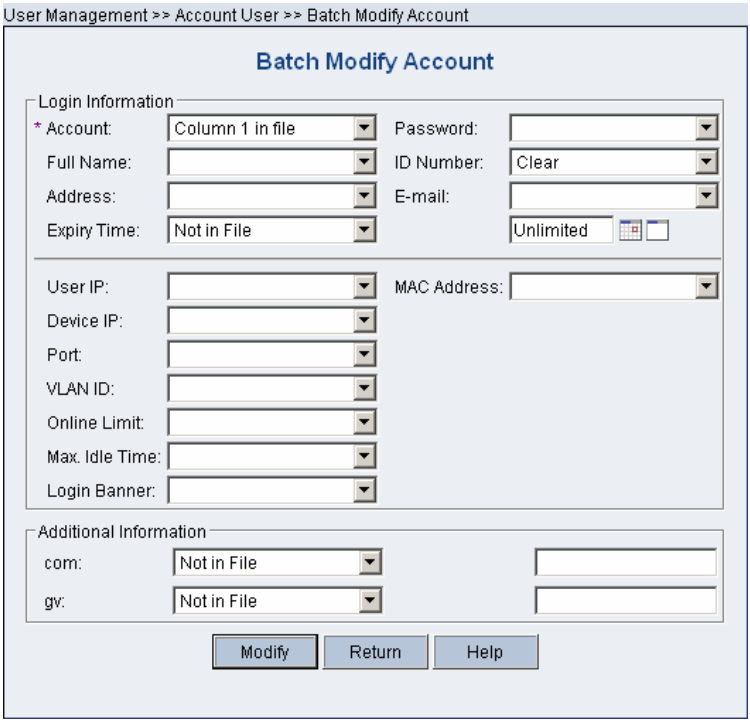


Figure 2-9 Batch Modify Account

There are four types of options for the parameters on this page: null, column n in file, clear, and not in file. The descriptions on the options are shown in Table 2-1.

Table 2-1 Descriptions on the options for the parameters

Option	Meaning	Parameters that can select this option
Null	The parameter remains unchanged.	All parameters except the account name

Option	Meaning	Parameters that can select this option
Column n in file	Column n of the batch account file will be selected as the values of the parameter.	All parameters
Clear	The parameter is cleared.	ID number, address, Email address, user IP address, user MAC address, device IP address, port number, VLAN ID, maximum idle time, login banner, and the additional information fields that can be null
Not in file	This parameter does not take the values in the batch account file, and needs to be inputted manually.	Password, account expiry time, device IP address, port number, VLAN ID, online limit, maximum idle time, login banner, and all additional information fields

Input and select proper parameters, and click <Modify> to complete the batch modifications.

Only the information of the existing accounts in CAMS can be batch modified. Otherwise, the batch modifications cannot succeed, and the failure prompt is shown in Figure 2-10. You can click “here” to view the error information or download it to your PC.

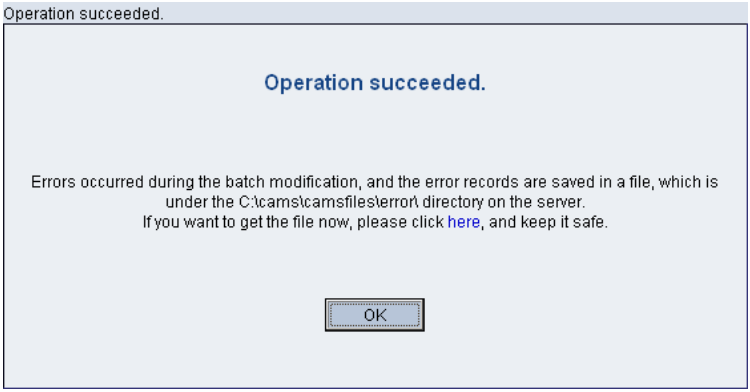

Operation succeeded.
Operation succeeded.
Errors occurred during the batch modification, and the error records are saved in a file, which is under the C:\cams\camsfiles\error\ directory on the server.
If you want to get the file now, please click here, and keep it safe.
OK

Figure 2-10 Page prompting that errors occur

IV. Maintain account users

Account users carry the core information in CAMS, and CAMS provides a lot of functions related to them. For your easy usage of these functions, the account maintenance page provides corresponding links, which are intended for a specific account user. The navigation tree also provides options for account maintenance, which are intended for all account users in CAMS.

On the [Account Management] page, click <Maintain> of the account user to be modified to enter the [Account User Info] page, as shown in Figure 2-11.

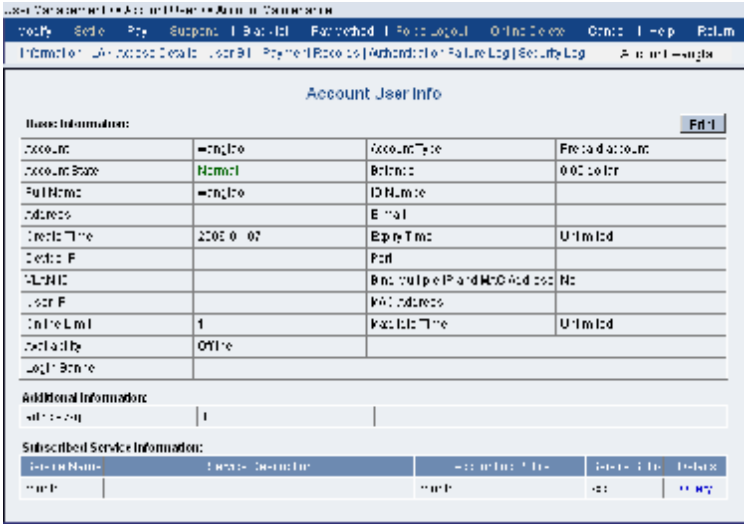


Figure 2-11 Page for maintaining an account user

The page consists of three parts. The first line from the top contains several application links for different maintenance operations. Below them are query links for displaying specific account information in the following [Query Section] area.

Application links are described as follows:

- Modify: Click <Modify> to open the [Modify] dialog box, where you can modify information of the current account and applied services.
- Settle: For ordinary accounts, you can click <Settle> for manual settlement. This link functions the same as the Settle link displayed when you select [Charges Management/User Fee].

- Pay: Click <Pay> to pay for the current account user. This link functions the same as the Payment link displayed when you select [Charges Management/User Fee].
- Suspend: A suspended account cannot access the network. For information about what effect account suspending has on accounting and how to restore a suspended account, refer to the system prompt or online help.
- Blacklist: Click <Blacklist> to open the [Blacklist] dialog box. You can add the current account to the blacklist or remove it from the blacklist as needed. For related operations, refer to 2.2.5 “Blacklist Management”.
- Pay Method: Click this link to change the account type of the current account. Two account types are available: prepaid account and ordinary account. This link functions the same as the Change Account Type link displayed when you select [Charges Management/User Fee].
- Force Logout: CAMS enables the administrator to disconnect an online user. This function can be used when you find that a user operates abnormally, with a heavy traffic, for example. You can click <Force Logout> to inform CAMS to send control packets to the access device, which then will disconnect with the specific user. This link functions the same as the Force Logout link in the [Force Logout] field displayed when you select [System Management/Online User].

- Online Delete: Users that logged out and stopped being charged but are still displayed in the online user list are called suspension users. You can click <Online Delete> to delete the current user.

Caution:

Deleting an online user may cause accounting faults, so you must use this function cautiously. Besides, an online user may still use the subscribed services for a while after being deleted. You can delete some online users who cannot utilize services normally due to system faults.

- Cancel: Click <Cancel> to delete an unused or unneeded account. For information on related accounting rules, refer to the system prompt or online help.

Query links are described as follows:

- Information: By default, the account maintenance page displays account user information, including the basic information, additional information (if any), and subscribed service information. In the [Subscribed Service Information] area, you can click <Query> of a service to view its details.
- Current Fee: This link is available when the current user is an ordinary user. It is used to display a list of settled but unpaid bills and other fee-related information.

- LAN Access Details: This link functions the same as the page shown after you select [User Data Query & Export/LAN Access Details]. However, operations on the two pages vary. Refer to Figure 2-12 for details.
- User Bill: Click <User Bill> to display all bills of the current account saved in CAMS. In the list, you can click <Details> of a bill to view its details including the network access records. The function of querying user bills is also provided on the page shown after you select [User Data Query & Export/Bill Query].
- Payment Records: Click this link to view all payment records in CAMS of the current user. The function of querying payment records is also provided on the page shown after you select [User Data Query & Export/Payment Record].
- Authentication Failure Log: Click this link to view all authentication failure log items in CAMS of the current user. The function of querying authentication failure logs is also provided on the page shown after you select [System Management/Log Query/Authentication Failure Log].
- Security Log: Click this link to view the security logs of the current user in CAMS. The function of querying security logs is also provided on the page shown after you select [Security Management/Security Log].

& Note:

The security logs are generated only for the users utilizing services with security policies.

On the account maintenance page, you can click <LAN Access Details> to enter the [LAN Access Details] page shown in Figure 2-12.

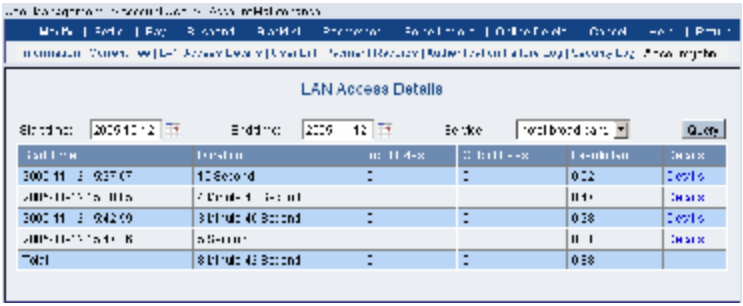


Figure 2-12 LAN Access Details

LAN access information of the latest month is queried by default. Take Figure 2-12 for example, the current date is 2005-11-12, and the default queried period is 2005-10-12 to 2005-11-12. All records of LAN access with the listed service during this period will be displayed.

You can adjust the start and end time and click <Query> to query detailed information on LAN access with the specified service. If multiple services are applied, you can select the desired one and operate in the same way for query.

& Note:

LAN access details are related with a specific service the user utilizes.

On the query result page, you can click <Details> of a record to view its details.

V. Query account users

Through the advance query function, you can make accurate query with more query conditions. You can click <Advanced> in Figure 2-3 to enter the [Advanced Query] page shown in Figure 2-13.

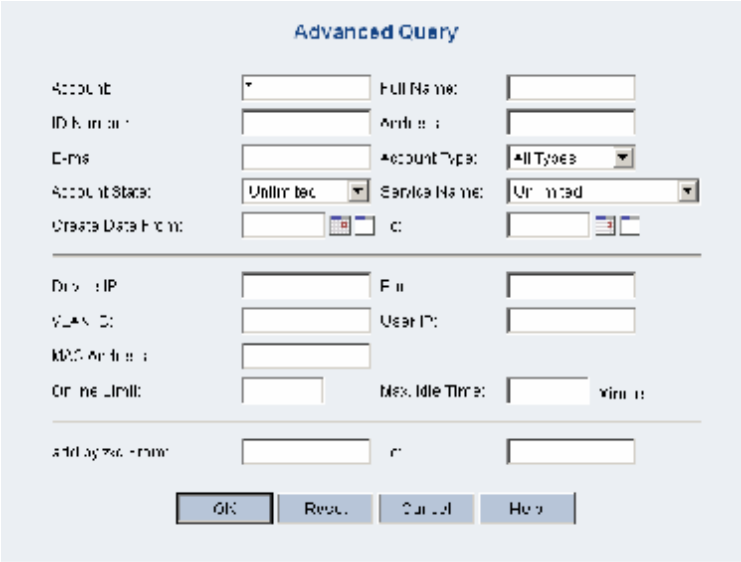


Figure 2-13 Advanced Query

With advanced query, you can set query conditions by combining account basic information with customized additional information flexibly. The Account parameter supports wildcard * and all parameters of the string type support backward fuzzy matching. You can perform query by inputting and selecting proper query conditions and clicking <OK>.

& Note:

- A null parameter can be matched by any value.
- CAMS provides other similar pages, where all parameters that default to "*" support query by the wildcard.

2.2.2 Card Management

Card users are like temporary account users. The cards can be withdrawn automatically within a period of time to ensure sufficient user resources. Card users provide fewer functions than account users.

On the navigation tree, select [User Management/Card User] to enter the [Card Number Management] page shown in Figure 2-14.

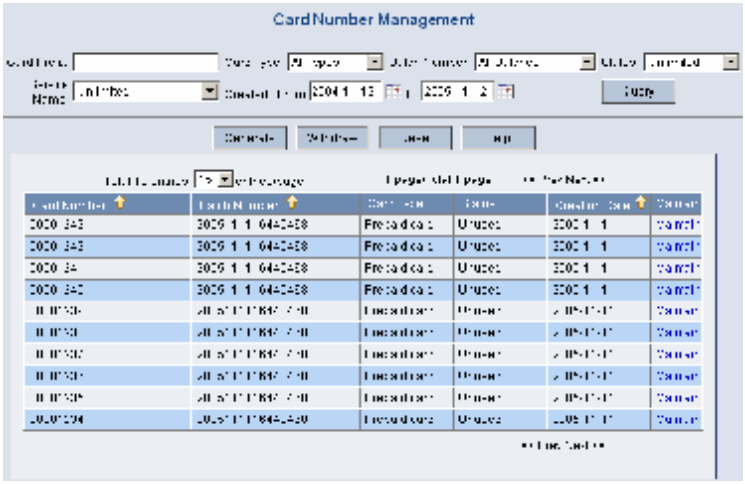


Figure 2-14 Card Number Management

The card number management allows you to generate, withdraw, and maintain card numbers.

I. Generate card number

Click <Generate> to enter the [Generate Card Number] page, as shown in Figure 2-15.

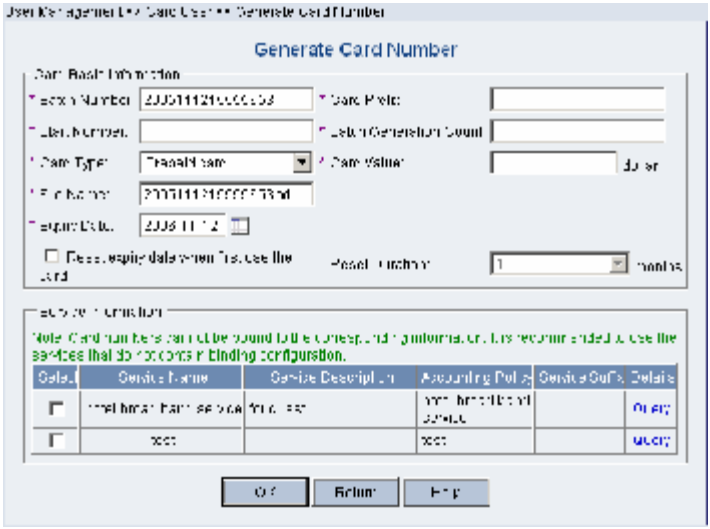


Figure 2-15 Generate Card Number

There are two areas on this page from top to bottom: Card Basic Information and Service Information. For the explanation of the parameters in the [Card Basic Information] area, refer to online helps. In the [Service Information] area, the applicable services are listed. You can click <Query> of a service to view its details.

Input and select proper parameters, select the services to be applied for, and click <OK> to generate card numbers. After the card numbers are generated successfully, the [Operation succeeded] page appears. Click to download the card number file and save it to your computer. Meanwhile, you can see that the newly generated card numbers are displayed on the [Card Number Management] page.

& Note:

- If a card user applies for services with binding configurations, they will be implemented through self-learning. That is, the user is bound to the related information of the first access.
- The card number file records important information such as passwords. Thus, CAMS provides the link for downloading the file only on the [Operation succeeded] page after the card numbers are generated successfully. This ensures the security of the card number file.

Note the following when applying for services for a batch of card numbers:

- A batch of card numbers applies for the same services.
- A batch of card numbers needs to apply for at least one service.

II. Withdraw card number

The withdrawal types include: specified batch of cards, and by specified condition. The information of these withdrawn cards will be exported to a file and backed up. You can download the file and save it to your computer.

& Note:

- You can input the withdrawal file name without the file path information, and the generated file will be saved under <CAMS installation directory>\camsfiles\card\ on the server.
- The card withdrawal file records important information. To ensure the security of the file, CAMS provides the link for downloading the file only on the [Operation succeeded] page after the card numbers are withdrawn successfully.

On the page shown in Figure 2-14, click <Withdraw> to enter the [Card Withdraw] page shown in Figure 2-16.

Figure 2-16 Withdraw specified batch of cards

The operations for the two withdrawal types are as follows:

1) Withdraw specified batch of cards

The [Card Withdraw] page where the withdrawal type **specified batch of cards** is selected is shown in Figure 2-16.

If there is no batch of cards in the current system, the **specified batch of cards** option will not be available on this page.

Select the batch number of the cards to be withdrawn, input a name in the [After-withdrawal Exporting File Name] field, and click <Withdraw> to begin withdrawing cards. If the cards are withdrawn successfully, the [Operation succeeded] page appears. You can click to download the card withdrawal file and save it on your computer.

2) Withdraw cards by specified condition

The [Card Withdraw] page where the withdrawal type **by specified condition** is selected is shown in Figure 2-17.

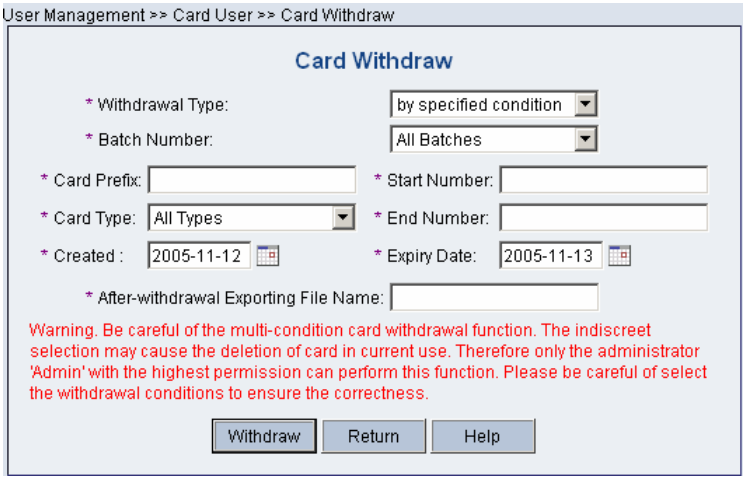

User Management >> Card User >> Card Withdraw
Card Withdraw
* Withdrawal Type:
by specified condition
* Batch Number:
All Batches
* Card Prefix:
* Start Number:
* Card Type:
All Types
* End Number:
* Created :
2005-11-12
* Expiry Date:
2005-11-13
* After-withdrawal Exporting File Name:
Warning. Be careful of the multi-condition card withdrawal function. The indiscreet selection may cause the deletion of card in current use. Therefore only the administrator 'Admin' with the highest permission can perform this function. Please be careful of select the withdrawal conditions to ensure the correctness.
Withdraw
Return
Help

Figure 2-17 Withdraw cards by specified condition

This withdrawal type is risky, so only the system administrator “ADMIN” has the right to withdraw cards by specifying conditions.

Specify the conditions for withdrawing the cards, input a name in the [After-withdrawal Exporting File Name] field, and click <Withdraw> to enter the page shown in Figure 2-18.

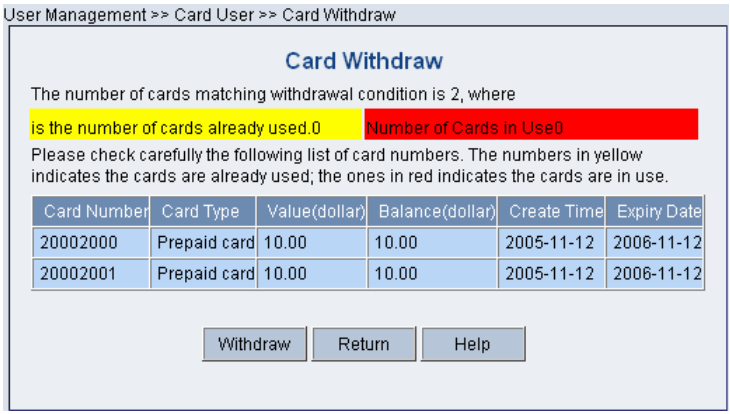


Figure 2-18 Page allowing you to confirm the withdrawn cards

The cards that meet the specified conditions (that is, the cards to be withdrawn) are listed. The cards already used are in yellow; the cards being used are in red. Note that the cards being used (in red) cannot be withdrawn.

Click <Withdraw>, and a dialog box appears, asking you to confirm the deletion. Click <OK>, and the cards are withdrawn. After the cards are withdrawn successfully, the [Operation succeeded] page appears. You can click to download the card withdrawal file and save it on your computer.

& Note:

- The name of the card withdrawal file cannot be the same as that of any existing files under the directory <CAMS installation directory>\camsfiles\card\. Otherwise, a page appears, prompting that the file already exists and withdrawing cards failed.
- The two withdrawal types are mainly applied to the case when the card numbers are generated incorrectly. This usually occurs before the cards are sold. If the cards are sold already, you are not recommended to withdraw them using the two types.

III. Maintain card number

Click <Maintain> of a card number to enter the corresponding [Card User Information] page, as shown in Figure 2-19.

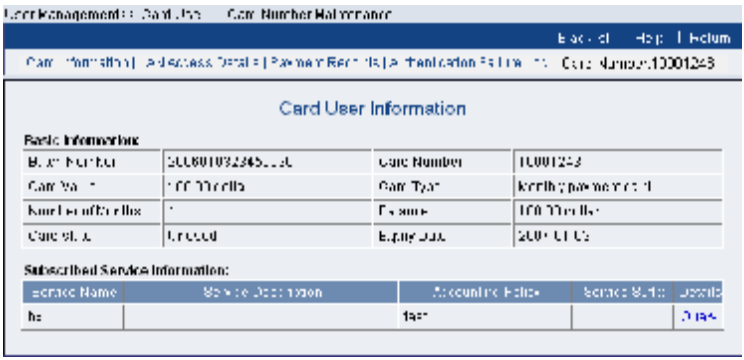


Figure 2-19 Card User Information

Similar to the page to maintain the accounts, this page includes three sections: Application Link, Query Link and Query Section. The Application Link includes the Blacklist link, which is used to add a card number into the blacklist. The Query Link includes the Card Information (by default), LAN Access Details, Payment Records, and Authentication Failure Log links. The functions of these links are similar to that for maintaining the accounts and are not described here. In the Query Section, you can click <Query> of a service to view its details.

2.2.3 User for Device Management

The users for device management are different from the account users and card users. The reasons are as follows: The account and card users provide authentication functions for end users accessing the network. The users for device management are intended for administrators and they make administrators manage the hosts on the network conveniently. The user names and passwords for the services that the hosts provide are kept in CAMS. The users who intend to utilize the services will be authenticated by CAMS.

On the navigation tree, select [User Management/User for Device Management] to enter the [User for Device Management] page shown in Figure 2-20.

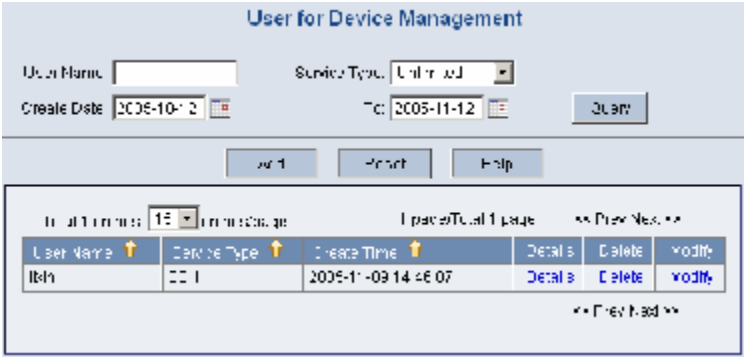


Figure 2-20 User for Device Management

I. Add user for device management

Click <Add> to enter the [Add Account] page shown in Figure 2-21.

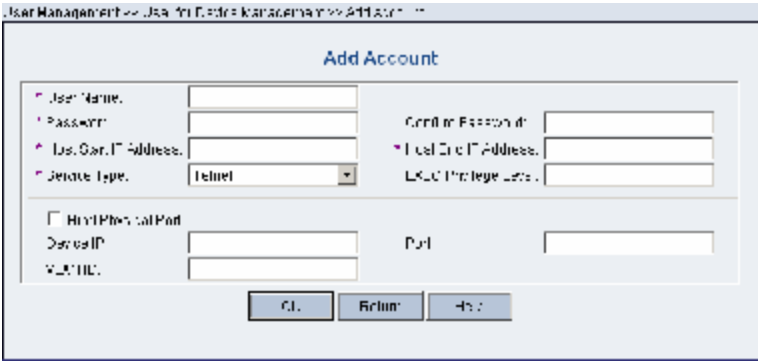


Figure 2-21 Add Account

The upper area on the page allows you to perform the user, host, and service settings, while the lower area enables you to configure the binding information. As shown in Figure 2-21, a user “admin” is added.

The host start address and end IP address are specified, and the service type **Telnet** is selected. In this way, end users can telnet to the hosts within the IP addresses from **192.168.4.1** to **192.168.4.200** using the user name “admin” and the corresponding password.

Caution:

When configuring users for device management, you must configure the corresponding access device on the [Access Device Configuration] page. To enter this page, select [System Management/System Configuration] on the navigation tree. On the [System Configuration] page, click <Modify> of the Access Device item. The service type of the access device must be “Device Management Service”.

To enhance security, you can set binding information for the users for device management. As shown in Figure 2-21, end users can telnet to the corresponding hosts only through port 2 on the access device at 192.168.4.2.

& Note:

The user for device management “admin” is different from the CAMS default system administrator “ADMIN”. The former has the right to access the hosts on the network through telnet (or other services). The user “admin” and its corresponding password are saved in CAMS, and the user is authenticated by CAMS when wanting to utilize services. The latter has the right to administrate CAMS, but does not have the right to use related services of the hosts on the network.

II. Query user for device management

Click <Details> of a user on the [User for Device Management] page to view the details.

III. Delete user for device management

On the [User for Device Management] page, click <Delete> of a user to enter the [Delete User] page. Click <Delete>, and the user is deleted.

IV. Modify user for device management

Click <Modify> of a user to enter the [Modify User] page, where you can modify related information of the user except the user name.

2.2.4 User Account Batch Operation

The account batch operations refer to querying, charging, modifying, and cancelling accounts in batches and so on. You can

query the accounts using different conditions as needed and perform batch operations on them.

On the navigation tree, select [User Management/User Account Batch Operation] to enter the [User Account Batch Operation] page, as shown in Figure 2-22.

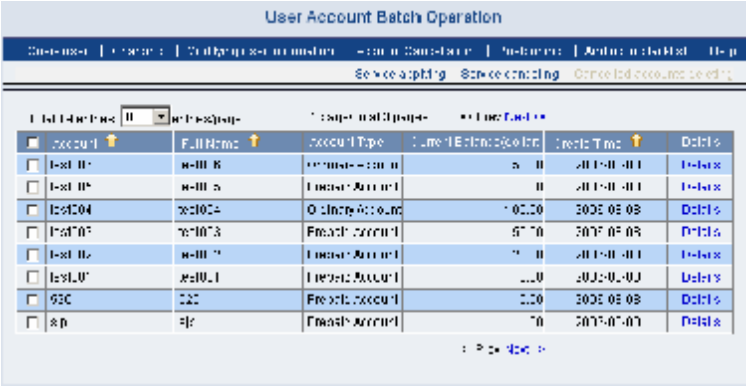


Figure 2-22 User Account Batch Operation

The functional links for batch operations are listed in the upper area. The queried accounts are listed below and up to 1000 accounts can be displayed on one page. You can click <Details> of an account to view the details.

I. Batch query

To perform batch operations, you need to query the accounts first. Select [Query user] in the upper area to open the [Query user] dialog box, as shown in Figure 2-23.

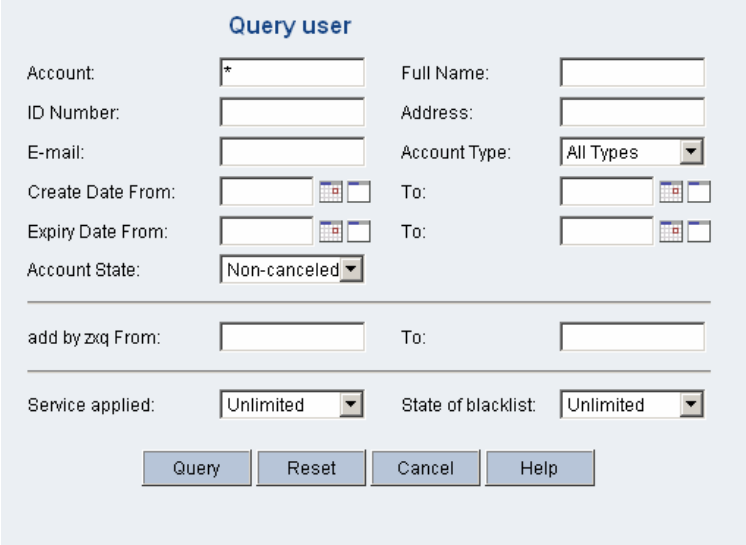


Figure 2-23 Query user

There are three parts on this dialog box. The upper part includes the basic information of the accounts. The middle part displays the additional information of the accounts. (This part varies with different settings.) The lower part allows you to set the subscribed service and the state of forbidding list. You can input or select the parameters as needed and click <Query> to return to the [User Account Batch Operation] page shown in Figure 2-22. The accounts that meet the specified conditions will be listed on the page.

Caution:

- If you do not input or select a parameter, it means that the parameter is unlimited.
- All parameters support backward fuzzy matching. For example, if you input **a** in the [Full Name] field, all account users with full names starting with “a” will be displayed.
- All inputted parameters except the full name are case insensitive.

II. Batch charging

On the [User Account Batch Operation] page, select one or more accounts and then select [Charging] to open the [Charging] dialog box, as shown in Figure 2-24. Note that you can also select the check box before the Account column header to select all accounts on the current page.

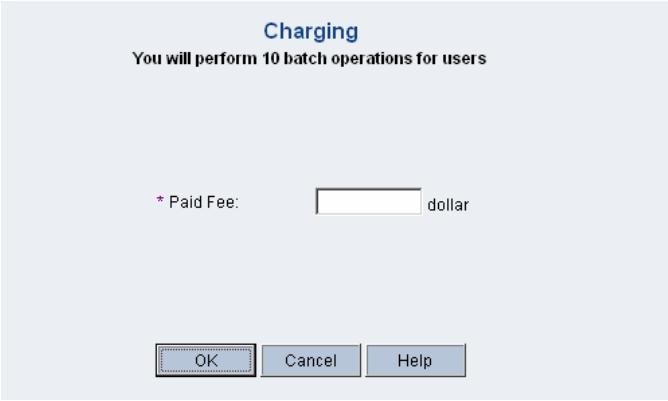


Figure 2-24 Charging

Input a proper value in the [Paid Fee] field, and click <OK> to complete the operation.

III. Batch modification

On the [User Account Batch Operation] page, select one or more accounts and select [Modify user information] to open the [Modify user information] dialog box, as shown in Figure 2-25.

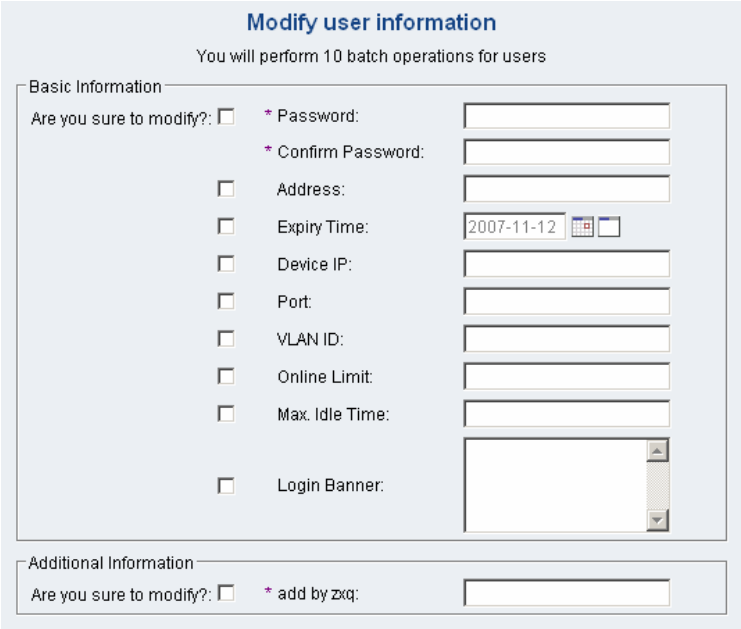


Figure 2-25 Modify user information

The modifiable parameters are displayed, and the check boxes before them are used to determine whether to modify them. The field marked with "*" cannot be left empty once the corresponding check box is selected.

After modifying related parameters, click <OK> to complete the batch modification.

IV. Batch cancellation

On the [User Account Batch Operation] page, select one or more accounts and select [Account Cancellation] to open the [Account Cancellation] dialog box, as shown in Figure 2-26.

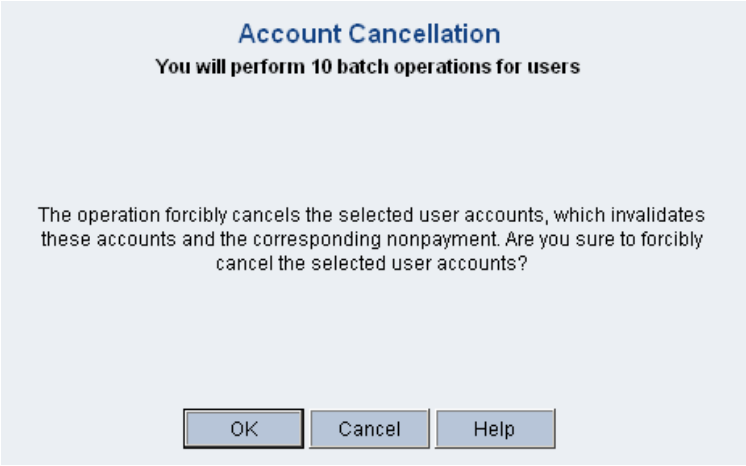

Account Cancellation
You will perform 10 batch operations for users
The operation forcibly cancels the selected user accounts, which invalidates these accounts and the corresponding nonpayment. Are you sure to forcibly cancel the selected user accounts?
OK
Cancel
Help

Figure 2-26 Account Cancellation

Click <OK>, and the selected accounts will be cancelled. If the accounts are not cancelled successfully, you can click the link on the prompt page to view the failure reasons.

Caution:

- The online accounts can also be cancelled.
- Once an account is cancelled forcibly, it cannot be used anymore, and its nonpayment cannot be reclaimed.

V. Batch postponing

For related descriptions of postponing, refer to Figure 2-27.

On the [User Account Batch Operation] page, select one or more accounts, select [Postponing], and the [Batch postponing] dialog box appears, as shown in Figure 2-27.

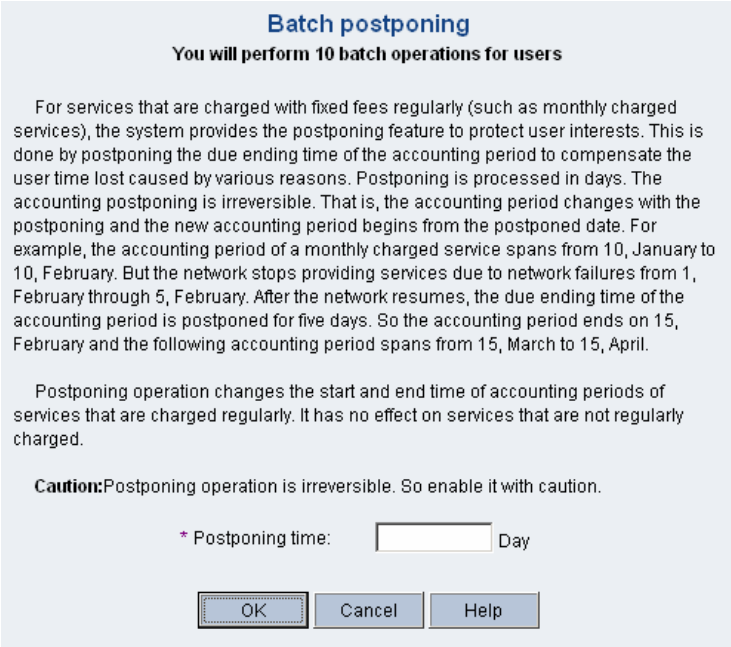

Batch postponing
You will perform 10 batch operations for users
For services that are charged with fixed fees regularly (such as monthly charged services), the system provides the postponing feature to protect user interests. This is done by postponing the due ending time of the accounting period to compensate the user time lost caused by various reasons. Postponing is processed in days. The accounting postponing is irreversible. That is, the accounting period changes with the postponing and the new accounting period begins from the postponed date. For example, the accounting period of a monthly charged service spans from 10, January to 10, February. But the network stops providing services due to network failures from 1, February through 5, February. After the network resumes, the due ending time of the accounting period is postponed for five days. So the accounting period ends on 15, February and the following accounting period spans from 15, March to 15, April.
Postponing operation changes the start and end time of accounting periods of services that are charged regularly. It has no effect on services that are not regularly charged.
Caution:Postponing operation is irreversible. So enable it with caution.
* Postponing time:
Day
OK
Cancel
Help

Figure 2-27 Batch postponing

Input a value in the [Postponing time] field, and click <OK> to complete the operation.

VI. Adding accounts to blacklist in batches

On the [User Account Batch Operation] page, select one or more accounts and select [Add to blacklist] to open the [Add to blacklist] dialog box. Click <OK>, and the selected accounts will be added to the blacklist. If the selected accounts are already in the blacklist, an error prompt appears, as shown in Figure 2-28. You can click <here> to view the error information or save it to your computer.

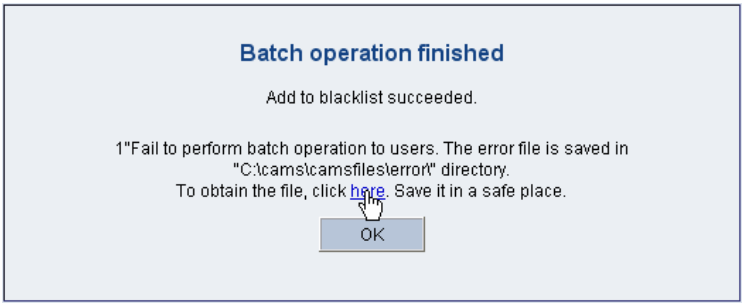

Batch operation finished
Add to blacklist succeeded.
1"Fail to perform batch operation to users. The error file is saved in "C:\cams\camsfiles\error\" directory.
To obtain the file, click here. Save it in a safe place.
OK

Figure 2-28 Page prompting the batch operation result

VII. Batch service applying

On the [User Account Batch Operation] page, select one or more accounts and select [Service applying] to open the [Batch service applying] dialog box, as shown in Figure 2-29.

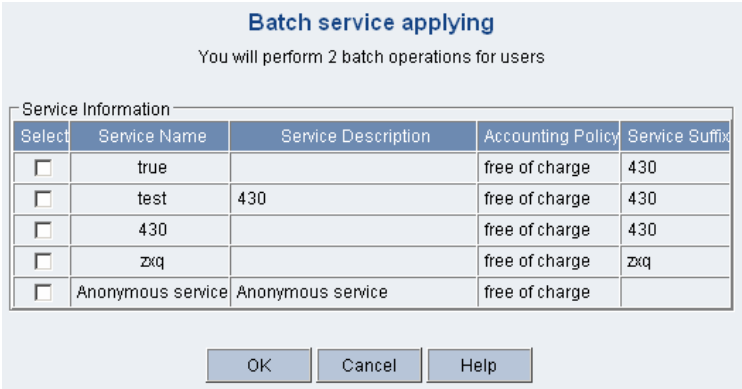


Figure 2-29 Batch service applying

Select the services to be applied for, and click <OK>.

VIII. Batch service cancelling

Different account users may apply for different services. To perform batch service cancelling, you need to first select a service from the Service applied drop-down list on the page shown in Figure 2-23 to query account users.

On the [User Account Batch Operation] page, select one or more accounts and select [Service canceling] to open the [Batch service canceling] dialog box, as shown in Figure 2-30.

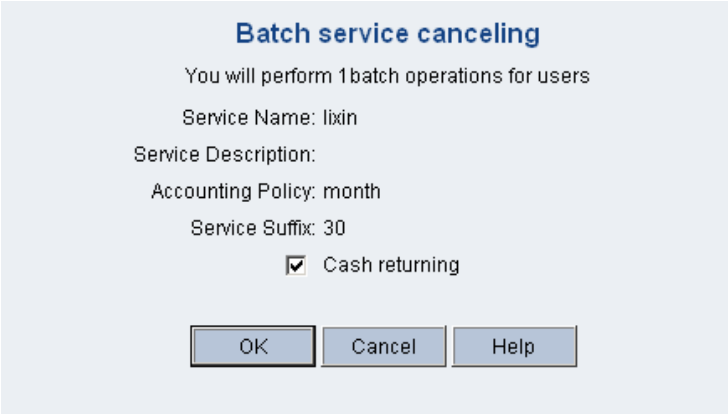


Figure 2-30 Batch service canceling

The services used by all selected users are displayed. If the Cash returning check box is selected, the remaining monthly payment will be returned to users after service cancellation. For example, the accounting period is from July 20 to August 20, and the monthly payment is 60 dollars. If the administrator cancels the service on August 5, and the cash returning is required, the remaining monthly payment of 30 dollars will be returned to the corresponding users.

Click <OK> to complete the operation.

IX. Deleting cancelled accounts

Deleting cancelled accounts means deleting the cancelled accounts and their related data from the database. Before deleting cancelled accounts, you must query accounts first. To do this, on the page shown in Figure 2-23, you need to select **Cancelled account** from the Account State drop-down list. The queried results are displayed on the page shown in Figure 2-31.

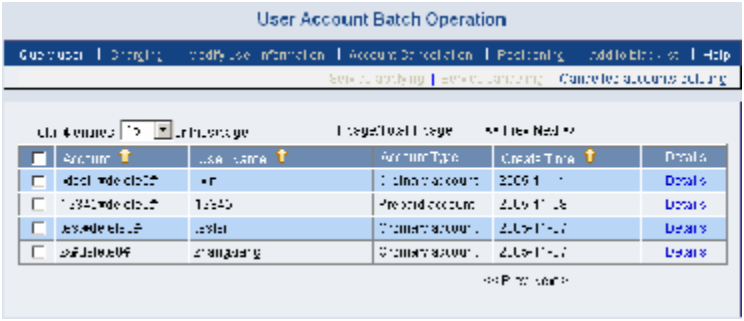


Figure 2-31 User Account Batch Operation

Select one or more accounts, and select [Cancelled accounts deleting] at the upper right corner to open the [Cancelled accounts deleting] dialog box, as shown in Figure 2-32.

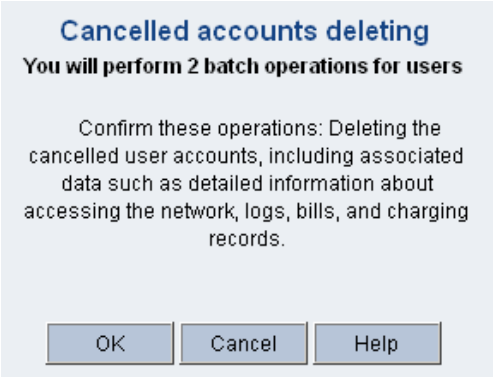

Cancelled accounts deleting
You will perform 2 batch operations for users
Confirm these operations: Deleting the cancelled user accounts, including associated data such as detailed information about accessing the network, logs, bills, and charging records.
OK
Cancel
Help

Figure 2-32 Cancelled accounts deleting

Click <OK>, and the cancelled accounts selected will be deleted. Besides, their related information is also deleted from the database, such as the access details, logs, bills, payment records and so on.

2.2.5 Blacklist Management

To enhance the security of system applications, CAMS provides blacklist management, allowing you to query the account users and card users that are disabled temporarily or delete them from the blacklist.

A user can be added to the blacklist in two ways: The administrator can add an account user or a card user manually (note that this kind of blacklist users can only be deleted by the administrator.); the system adds an account user or a card user to the blacklist automatically. The reasons why the system adds a user to the blacklist fall into three types:

- A user does not pay bills after the period set by the Nonpayment For Adding to Blacklist parameter. To set this

parameter, select [System Management/System Configuration] to enter the [System Configuration] page. For the Service Parameters item, click <Modify> to enter the [Service Parameters Configuration] page. Then, input a desired value in the [Nonpayment For Adding to Blacklist] field. After the user pays the nonpayment, the system will delete the user from the blacklist automatically.

- A user fails to recharge the corresponding account/card for more than the times set by the Charge Failure Times parameter. To set this parameter, enter the [Service Parameters Configuration] page first. Then, input a desired value in the [Charge Failure Times] field. The system will delete this user automatically from the blacklist at daybreak the next day.
- A user tries to log in maliciously for more than the times set by the Auth. Failure Threshold parameter. To set the parameter, enter the [Service Parameters Configuration] page first. Then, input a desired value in the [Auth. Failure Threshold] field. Similar to the second case, the system will delete this user automatically from the blacklist at daybreak the next day.

& Note:

If a user who has applied for multiple services is added to the blacklist, these services will become unavailable.

Select [User Management/User Blacklist] on the navigation tree to enter the [Blacklist Management] page shown in Figure 2-33.

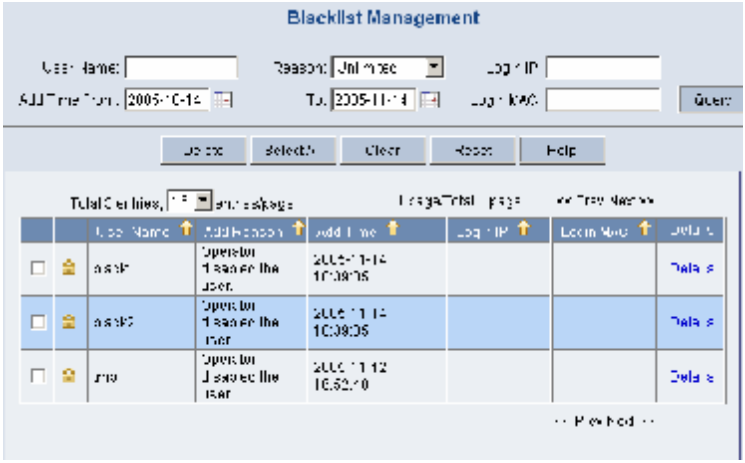


Figure 2-33 Blacklist Management

This page is slightly different from the [Account Management] page in that there is a check box before each entry. You can select multiple entries and perform operations on them at the same time. Two buttons Select All and Clear are added. You can click <Select All> to select all entries on the current page. You can click <Clear> to clear all selected entries. The common functions on this kind of pages are introduced before, and so are omitted later.

Blacklist management also allows you to query users in the blacklist or delete users from the blacklist.

I. Query users in the blacklist

On the [Blacklist Management] page, the parameters related to querying the blacklist are listed in the upper area, including User

Name, Reason, Login IP, and so on. Input or select proper parameters, click <Query>, and all queried users will be displayed. You can click <Details> of a user to view the basic information of the user and the reason why the user is added to the blacklist.

Note that: If a user inputs an incorrect password during authentication, the system will add the user to the blacklist automatically for the administrator to monitor the user. At this time, the user is displayed on the [Blacklist Management] page, but the user can still use services normally. Then, if the user logs in successfully, the system will delete the user from the blacklist automatically. However, if the failure times reach the times set by the Auth. Failure Threshold parameter, the user will be added to the blacklist formally, and the user cannot continue using services temporarily.

You need to select **Too many login faults** from the Reason drop-down list to query the users who are added to the blacklist temporarily. Then, you can click <Details> of a user to view the login failure times.

II. Delete users from the blacklist

The administrator can delete users from the blacklist manually. On the [Blacklist Management] page, select one or more users and click <Delete>. After your confirmation, the selected users are deleted from the blacklist.

2.2.6 Auxiliary Feature-Preregistered User Management

To reduce the workload when adding account users, especially when there is additional information, CAMS provides preregistered user management. The end users can click <User Preregistration> on

CAMS Self-service Platform to enter the [User Preregistration] page shown in Figure 2-34.

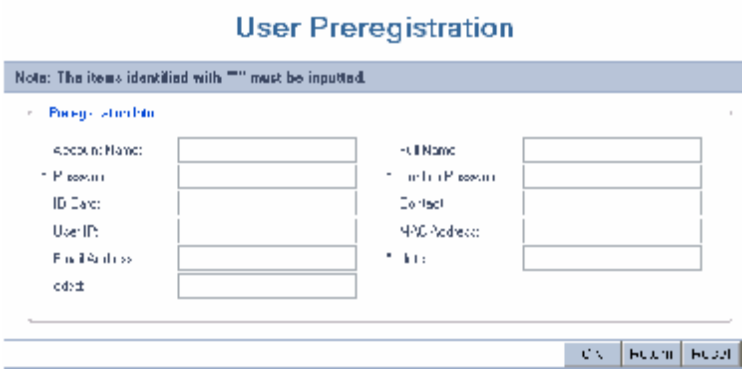


Figure 2-34 User Preregistration

Input the necessary information (both the basic and additional information is included), and click <OK> to complete the preregistration. Note that the accounting- and service- related information does not need to be inputted. The end users can apply for formal registration within a valid period after preregistration. The information specified during preregistration will be displayed on the [Add Account] page for formal registration, so the administrator just needs to set the accounting- and service- related information, thus improving efficiency.

& Note:

To enable the Preregistration function, select [System Management/System Configuration] to enter the [Service Configuration] page. For the Service Parameters item, click <Modify> to enter the [Service Parameters Configuration] page. Select **Permit** from the Self Preregister drop-down list. Then, the User Preregistration link is available on CAMS Self-service Platform.

If a preregistered user is not registered formally after the time set by the Preregistration Information Saving Time parameter, the system deletes it automatically. To set the parameter, select [System Management/System Configuration] to enter the [System Configuration] page. For the Service Parameters item, click <Modify> to enter the [Service Parameters Configuration] page. Input a desired value in the [Preregistration Information Saving Time] field.

Select [User Management/Auxiliary Feature/Preregistered User] on the navigation tree to enter the [Preregistered User Management] page, as shown in Figure 2-35.

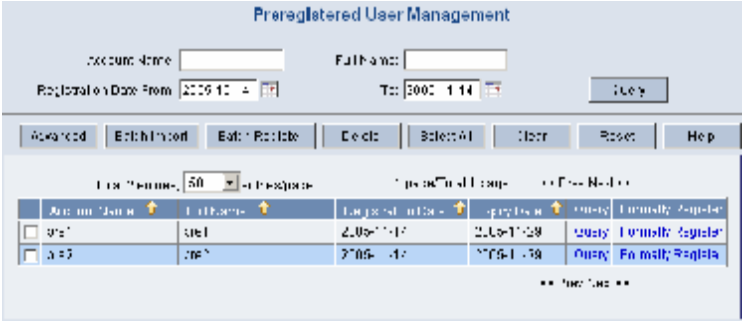


Figure 2-35 Preregistered User Management

You can click the buttons and links on the [Preregistered User Management] page to perform related operations.

I. Query preregistered users

Click <Query> of a preregistered user to enter the [Query Preregistered User] page, where you can view the details.

II. Advanced query

On the [Preregistered User Management] page, click <Advanced> to open the [Advanced Query] dialog box. The function is similar to the advanced query in account management (refer to the [Account Management] page shown in Figure 2-3). The Account parameter supports the wildcard “*”, and all parameters support backward fuzzy matching.

III. Batch import

Click <Batch Import> to enter the [Batch Account File] page. The operations are similar to the batch import in account management

(refer to the [Account Management] page shown in Figure 2-3), and are omitted here.

IV. Batch registration

On [Preregistered User Management] page, select the accounts for batch registration. Then, click <Batch Register> to enter the [Batch Register Preregistered Users] page, as shown in Figure 2-36.

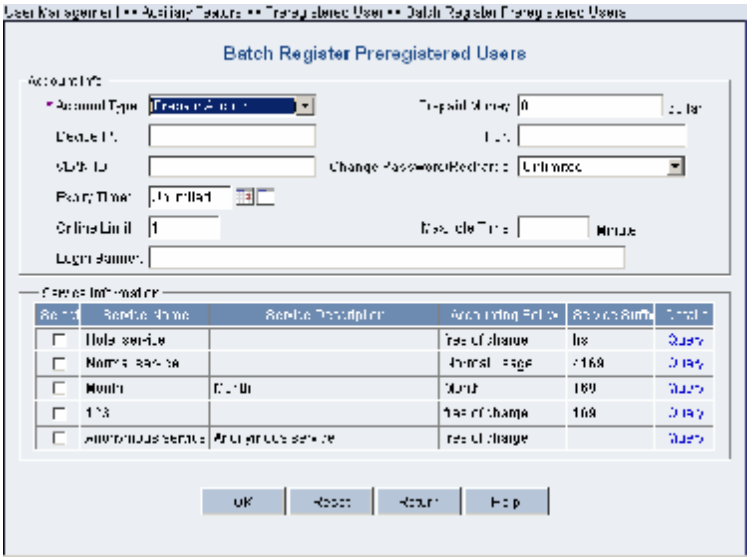


Figure 2-36 Batch Register Preregistered Users

The administrator does not need to input the users' basic information, and only needs to select an account type and the service information. Click <OK> and preregistered users are registered in batches. This operation improves efficiency greatly, because it can register in batches the preregistered users with the same account type and service information.

V. Delete preregistered users

The administrator can manually delete the preregistered users. On the [Preregistered User Management] page, select one or more preregistered users, and click <Delete>. After your confirmation, the selected preregistered users will be deleted.

VI. Formal registration

Click <Formally Register> of a preregistered user to begin formal registration. The operation page is similar to the [Add Account] page except that the specified preregistration information is displayed. The administrator only needs to set the information related to accounting and services. In addition, the Password parameter becomes optional. If the [Password] field is empty, the preregistered password will become the formal one. Input and select proper parameters, and click <OK> to complete the formal registration.

2.2.7 Auxiliary Feature-Additional Information Management

For flexible user management, CAMS allows you to customize user additional information. User additional information refers to the user information other than the basic information such as account, password, full name, ID, address, and E-mail. The administrator can customize, manage and maintain the additional information.

& Note:

Up to 20 additional information fields can be added. Make reasonable plans before adding additional user information, since too many additional information fields may cause management confusion.

Select [User Management/Auxiliary Feature/Additional Information] on the navigation tree to enter the [User Additional Information Management] page, as shown in Figure 2-37.

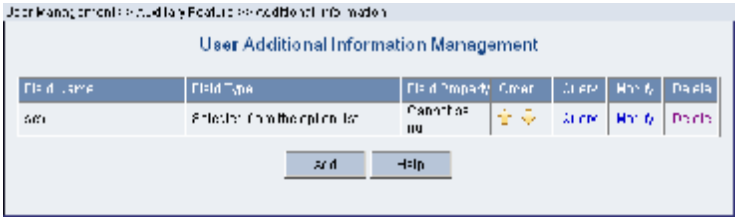


Figure 2-37 User Additional Information Management

This page lists all the defined user additional information fields. You can query, modify, delete, add, and sort the entries as needed.

I. Add user additional information field

On the [User Additional Information Management] page, click <Add> to enter the [Add User Additional Information Field] page. The page varies with different filed types, as shown in Figure 2-38, Figure 2-39, and Figure 2-40.

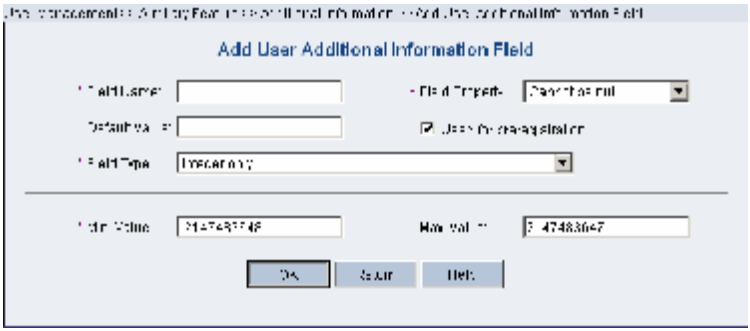


Figure 2-38 Add User Additional Information Field (1)

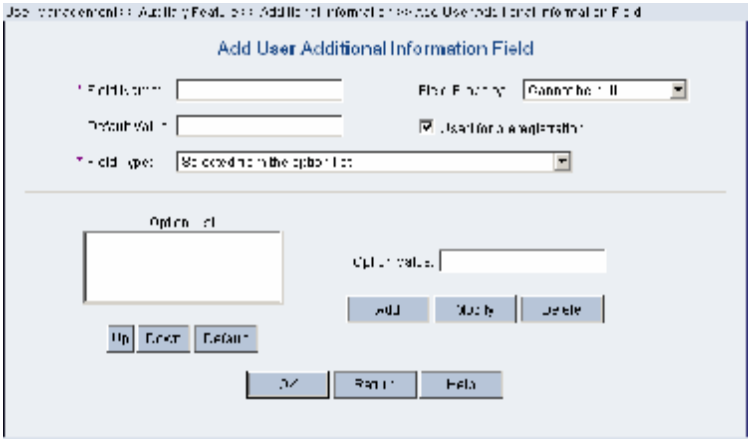


Figure 2-39 Add User Additional Information Field (2)

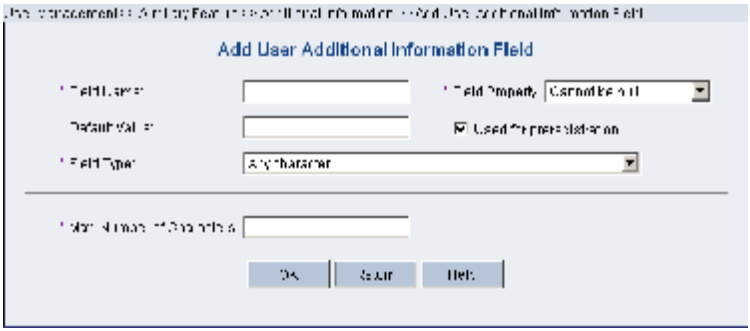


Figure 2-40 Add User Additional Information Field (3)

Input and select proper parameters and click <OK> to complete the operation.

& Note:

If the field type is set to **Letters, numbers or characters like {-_.@}** or **Any character**, the pages appear similar. If the field type is set to **Decimal fraction with no more than five digits can be inputted** or **Integer only**, the pages appear similar.

II. Modify user additional inforamtion field

On the [User Additional Information Management] page, click <Modify> of a field to modify the user additional information field except the field type.

III. Delete user additional information field

On the [User Additional Information Management] page, click <Delete> of a field and confirm your operation to delete it.

Caution:

When a user additional information field is deleted, its related user additional information is also deleted, so you must use this function cautiously.

IV. Query user additional informaiton field

On the [User Additional Information Management] page, click <Query> of a field to view its details.

V. Sort user additional information field

On the [User Additional Information Management] page, click and to adjust the order of the entries displayed on the [Add Account] page, as shown in Figure 2-41.

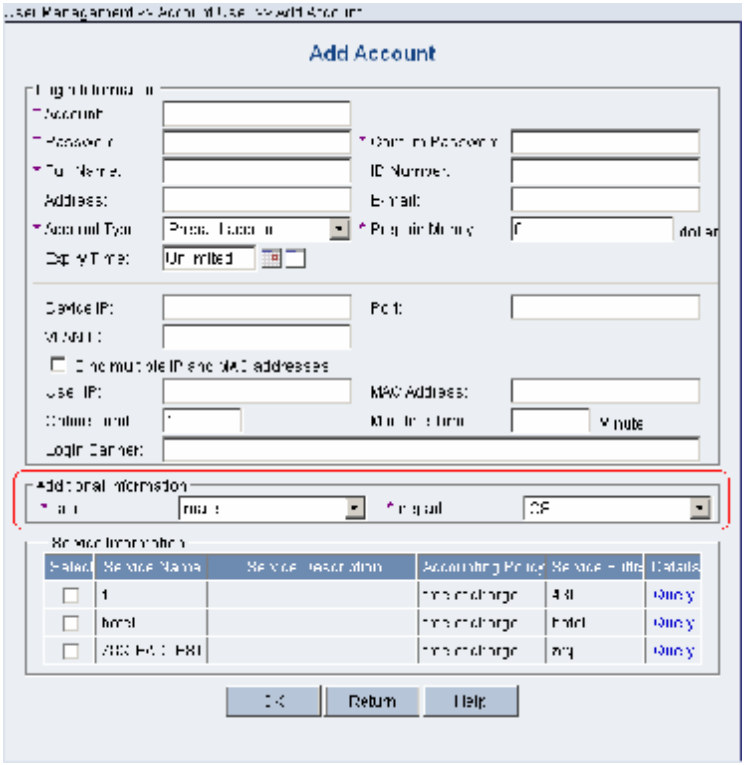


Figure 2-41 Add Account

2.2.8 Auxiliary Feature-Batch Account File

This function allows you to generate batch account files conveniently. With the batch account files, you can add accounts in batches using the batch import function in account management.

Select [User Management/Auxiliary Feature/Batch Account File] on the navigation tree to start generating a batch account file. The [Set

the number of the sections that form the account name] page appears, as shown in Figure 2-42.

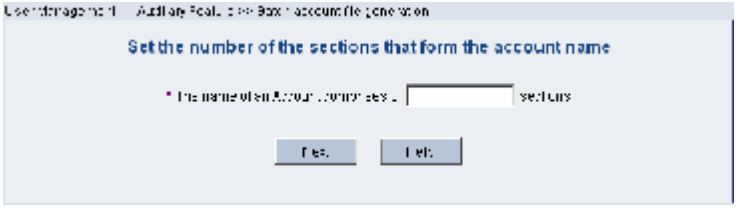


Figure 2-42 Set the number of the sections that form the account name

An account may contain a lot of information, so you must determine the number of sections that form an account. On the page shown in Figure 2-42, input a number (for example, 4) in the field and click <Next> to enter the [Batch account file generation] page, as shown in Figure 2-43.

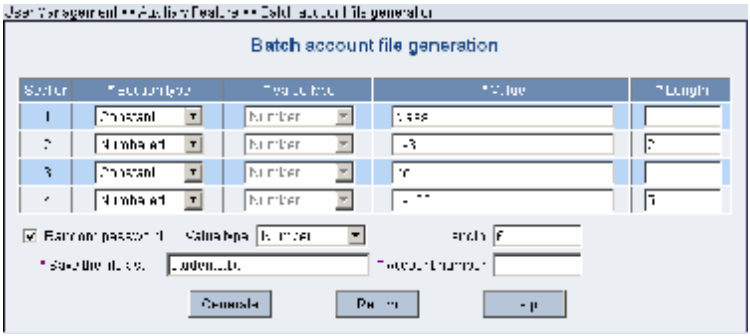


Figure 2-43 Batch account file generation

Click <Help> to view the description on the parameters.

Figure 2-43 illustrates how to generate a batch account file for students in a department. There are three classes in this department,

and there are 100 students in each class. The account comprises four sections, two of which are constant (“class” and “no.”) and two are numbered. Thus, the generated accounts are in the format of Constant (class) + Numbered (two digits) + Constant (no.) + Numbered (five digits). Select the Random password check box and specify the related information. Then, passwords are generated randomly, each having 6 digits. The accounts and passwords in the generated batch account file are separated by space. Accordingly, when batch importing accounts, you need to select **Space** from the File Column Separator drop-down list on the [Batch Account File] page, as shown in Figure 2-6.

After setting the parameters, click <Generate>. If the batch account file is generated successfully, the [Operation succeeded] page appears. Click <here> to download the file on your computer. The file contents are as follows:

```
class01no.00001 558978
class01no.00002 970697
…
class01no.00100 819548
class02no.00001 767036
class02no.00002 799987
…
class02no.00100 323040
class03no.00001 480396
…
class03no.00099 936823
class03no.00100 650745
```

The account file consists of two columns. The first column corresponds to the account name, and the second column the password. The file contains a total number of 300 accounts. It is concluded that the amount of the accounts is the product of the total number of each numbered value.

2.3 User Data Query & Export

CAMS allows you to query a lot of information and export it periodically in the form of tasks. The information may be user information, LAN access details, bills, and payment records. The operations about how to query and export various information are similar to each other, so the following illustrates how to query and export the user information only. For the description on related parameters, refer to online helps.

2.3.1 User Info

The administrator can query the necessary user information with different conditions. On the navigation tree, select [User Data Query & Export/User Info] to enter the [Query User Info] page, as shown in Figure 2-44.

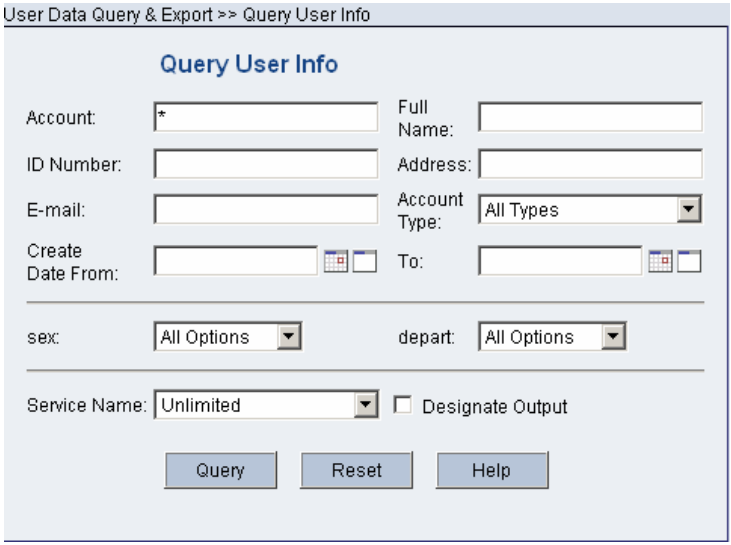


Figure 2-44 Query User Info

Input and select proper parameters as needed to query the user information. Note that you can select the Designate Output check box to specify the parameters to be outputted. If it is not selected, all the related information except the password will be outputted.

For example, to query the ordinary accounts that apply for the “hotel” service, you need to select **Ordinary account** from the Account Type drop-down list; select **hotel** from the Service Name drop-down list; specify the parameters to be outputted, as shown in Figure 2-45.

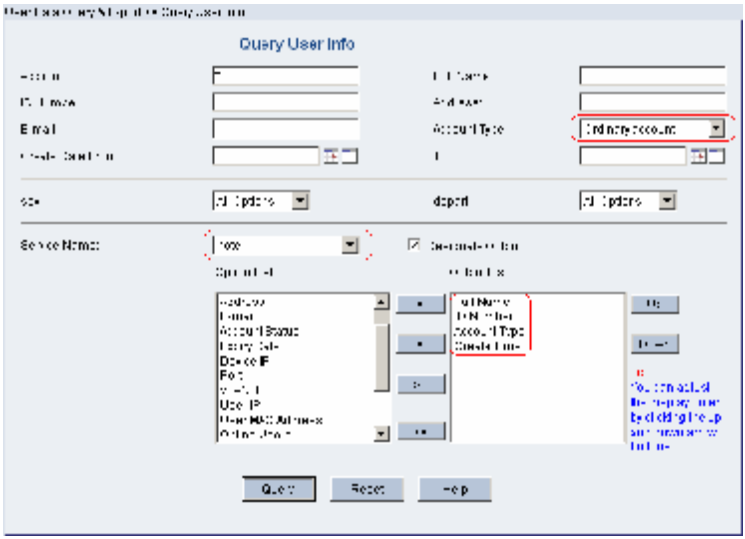


Figure 2-45 Query User Info

Click <Query> to enter the page shown in Figure 2-46.

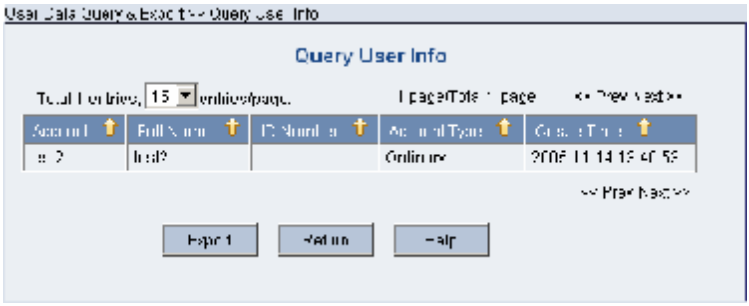


Figure 2-46 Query User Info

Click <Export> to open the [User Info Export] dialog box, as shown in Figure 2-47.

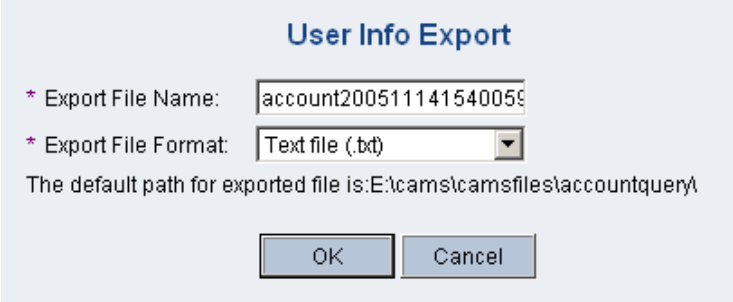


Figure 2-47 User Info Export

The page displays the default path of the exported file in CAMS. Input a name, select a file format, and click <OK> to export the queried results. If the queried results are exported successfully, the [Operation succeeded] page appears, and you can click to download the exported file to your computer.

2.3.2 Exporting Task

With the scheduled export management on LAN access details, bills, and accounts, you can implement the data backup periodically (such as daily or monthly).

Select [User Data Query & Export/Exporting Task] to enter the page shown in Figure 2-48.

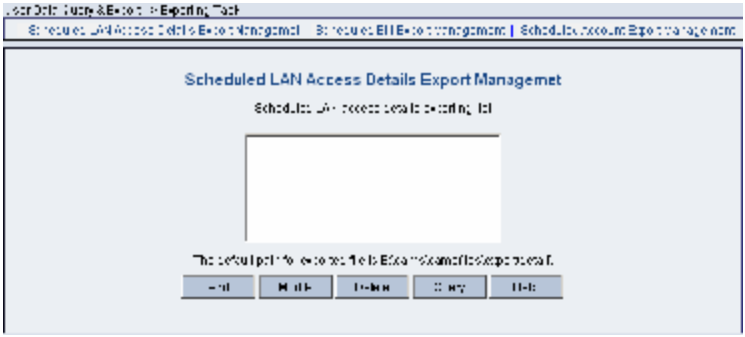


Figure 2-48 Scheduled LAN Access Details Export Management

By default, the [Scheduled LAN Access Details Export Management] page appears. You can click the corresponding links to switch to the [Scheduled Bill Export Management] page or [Scheduled Account Export Management] page. The following introduces how to export the LAN access details as scheduled. Click <Add> on the page to enter the [Add Scheduled LAN Access Details Exporting Task] page, as shown in Figure 2-49.

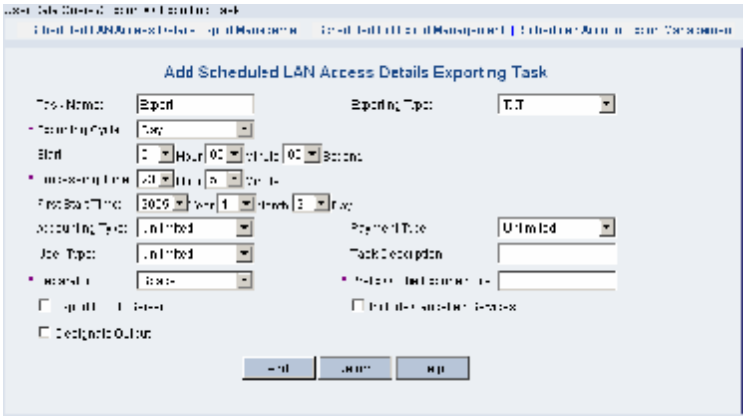


Figure 2-49 Add Scheduled LAN Access Details Exporting Task

As shown in Figure 2-49, the scheduled exporting task is executed at 23:50:00 each day. Suppose the current date is November 16, 2005. The first start time is set to be **November 9, 2005**, thus indicating that the data on November 9, 2005 will be exported first. If this operation succeeds, the system checks for scheduled tasks every several minutes. Once scheduled time expires, the corresponding tasks will be executed immediately. At first, the data from 00:00:00 on November 9, 2005 to 23:59:59 on November 9, 2005 will be exported. After several minutes, the data from 00:00:00 on November 10, 2005 to 23:59:59 on November 10, 2005 will be exported and so on. At last, the data from 00:00:00 on November 15, 2005 to 23:59:59 on November 15, 2005 will be exported. That is, the generated data before the current date will be exported in a short period at first. The task will be executed once each day hereafter, exporting the access details on the previous day.

You can click <Help> for descriptions of other parameters on this page.

Alternatively, you can select a task form the export list and click <Modify>, <Delete>, or <Query> to perform related operations.

2.4 Roaming Management

Roaming management implements the authentication, accounting and settlement when users access the network using different CAMSs. The following example illustrates the application of roaming management.

A university has three campuses A, B, and C, each having a CAMS system to perform authentication and accounting on the users who use campus network resources. Roaming management is used

for authentication and accounting when the students from campus A access networks on campus B or campus C.

There are two typical networking solutions used for roaming management.

1) Decentralized management

The network diagram is shown in Figure 2-50.

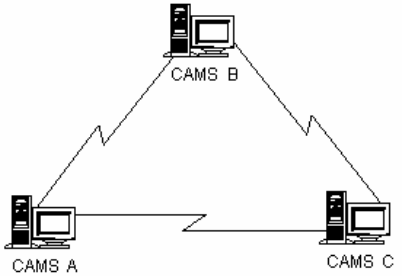


Figure 2-50 Decentralized management

Caution:

Figure 2-50 only shows the connections of CAMS servers, so does Figure 2-51.

A student from campus A accesses networks on campus B (the access device connects to CAMS B), and CAMS B recognizes the account from campus A by the service suffix name (the part following "@"). CAMS B forwards the authentication packets to CAMS A, which is to perform authentication and to forward the authentication results

to CAMS B. The accounting process is similar to authentication process.

2) Centralized management

The network diagram is shown in Figure 2-51.

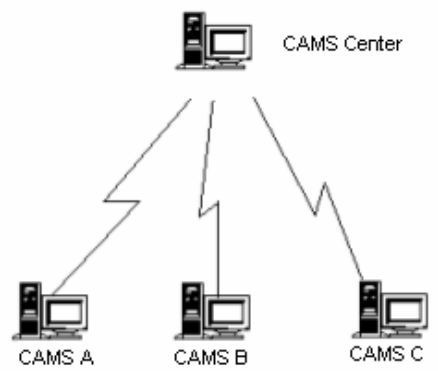


Figure 2-51 Centralized management

In this case, the CAMS system falls into two types: One type is responsible for centralized management (like CAMS Center in Figure 2-51), and the other type is for authentication and accounting management (like CAMS A/B/C in Figure 2-51). CAMS Center neither saves the authentication data nor provides normal services (such as authentication and accounting). It only forwards data as a centralized management core. CAMS A/B/C forwards authentication packets to CAMS Center for further operation when it detects the users from other areas. The accounting process is similar to the authentication process.

By comparison, it can be seen that the decentralized management applies to a simple network without too many CAMS nodes, while the centralized management applies to a complicated

network with many CAMS nodes. For configuration of roaming management, refer to related configurations in section 2.7.7 “System Configuration”.

2.5 LDAP Component

The accesses to the directory server (LDAP server) that is used for authentication are based on lightweight directory access protocol (LDAP). The LDAP server provides related information for user authentication, and it can be bound to CAMS.

2.5.1 LDAP Server Management

LDAP server management is used to manage the information of the LDAP servers bound to CAMS.

On the navigation tree, select [Component Management/LDAP Component/LDAP Server Management] to enter the [LDAP Server Management] page, as shown in Figure 2-52. The added LDAP servers are listed.

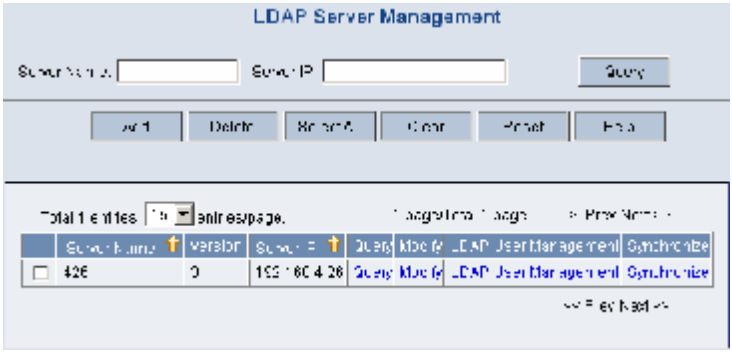


Figure 2-52 LDAP Server Management

I. Add LDAP server

Click <Add> to enter the [Add LDAP Server] page, as shown in Figure 2-53.

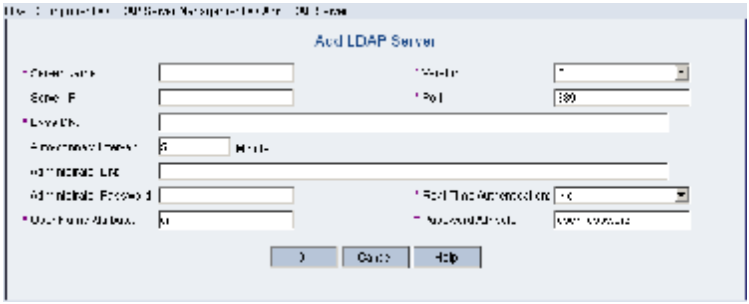


Figure 2-53 Add LDAP Server

The main parameters on this page are described as follows:

Base DN (Distinguished Name): Name of the root node that saves the user data on the LDAP server. It must be an absolute path on the LDAP server and be consistent with that configured on the LDAP server.

Auto-connect Interval: CAMS initiates connection requests to the LDAP server after this period of time since the connection failed last time.

Administrator DN (Distinguished Name): Name of the node that saves the administrator data on the LDAP server.

User Name Attribute: Name of the attribute that saves the user names on the LDAP server. It can identify a user uniquely and its default is cn.

Password Attribute: Name of the attribute that saves the user passwords on the LDAP server. It defaults to userPassword.

Real Time Authentication: If **Yes** is selected, the LDAP users will be authenticated by the LDAP server directly.

Select and input proper parameters, and then click <OK> to complete adding an LDAP server.

II. Query LDAP server

On the [LDAP Server Management] page, click <Query> of an LDAP server to view its details.

III. Modify LDAP server information

On the [LDAP Server Management] page, click <Modify> of an LDAP server to modify its related information on the [Modify LDAP Server Information] page, as shown in Figure 2-54.

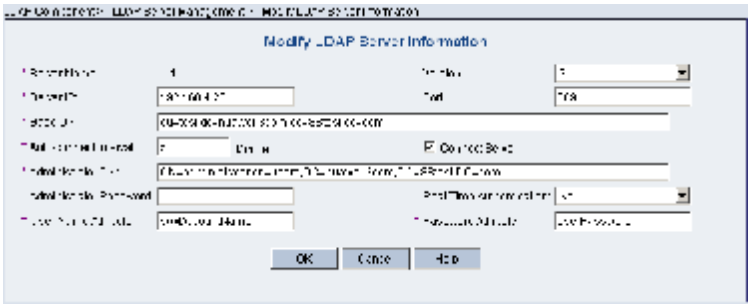


Figure 2-54 Modify LDAP Server Information

Note that the Connect Server check box is added to this page compared with the page for adding an LDAP server. This parameter is

used to determine whether the CAMS server has established connections with the LDAP server.

IV. LDAP user mangement

On the [LDAP Server Management] page, click <LDAP User Management> to enter the page shown in Figure 2-55, where you can manage the account users that are bound to this LDAP server.

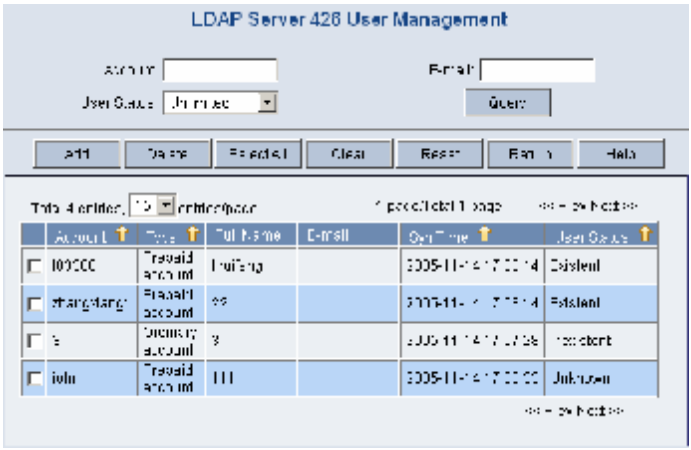


Figure 2-55 LDAP Server User Management

This page displays all accounts that have been bound to the LDAP server 426.

An account can be in one of the three states: Existent, Inexistent, and Unknown. When an account is bound but not synchronized to LDAP server, it is set to Unknown state. When an account is not found on the LDAP server during synchronization, it is set to Inexistent state.

Click <Add> on the page (shown in Figure 2-55) to enter the [Add LDAP Server Add User] dialog box, as shown in Figure 2-56.

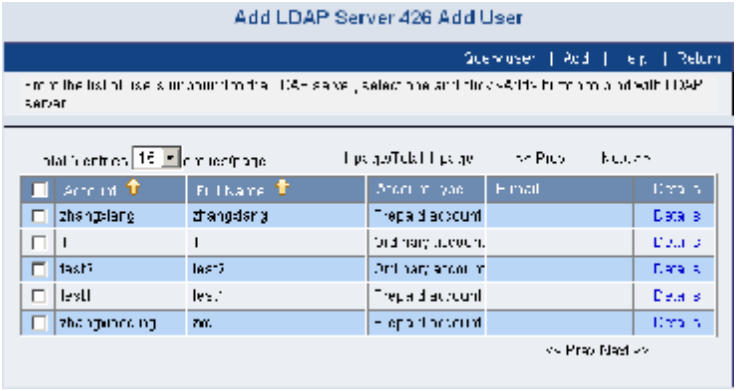


Figure 2-56 Add LDAP Server Add User

The available accounts are displayed. (Note that the accounts that have already been bound to the LDAP server are not displayed.) Select one or more accounts to be added, and then click <Add> to bind them to the current LDAP server.

Caution:

If the added account users do not exist on the LDAP server, they cannot pass the authentication.

Select [Return] to return to the [LDAP Server User Management] page.

Select one or more accounts, and click <Delete>. After your confirmation, the binding relationship between the accounts and the LDAP server will be removed.

V. Synchronize LDAP server

On the page shown in Figure 2-52, click <Synchronize> to synchronize the user information on the LDAP server. Two operations are involved:

- Check the status of users on the LDAP server: Check whether the users added for the LDAP server on CAMS exist on the LDAP server.
- Synchronize the passwords on the LDAP server: Check whether the user passwords saved in CAMS are consistent with those on the LDAP server. If not, the passwords in CAMS will be updated.

At last, the system will prompt whether the operation succeeds or not.

& Note:

- CAMS synchronizes the added LDAP servers automatically at 00:30:00 each day.
- The information to be synchronized varies with different LDAP servers. For example, the passwords on some LDAP servers are encrypted, so they cannot be synchronized.

2.5.2 LDAP Synchronization Configuration

LDAP synchronization means synchronizing the accounts from the LDAP server to CAMS. The synchronization configuration is used to configure the correspondence of the accounts on LDAP server and those in CAMS. You can set multiple synchronization configurations (either automatic or manual) on the LDAP server.

Select [Component Management/LDAP Component/LDAP Synchronization Configuration] to enter the [LDAP Synchronization Configuration] page, as shown in Figure 2-57.

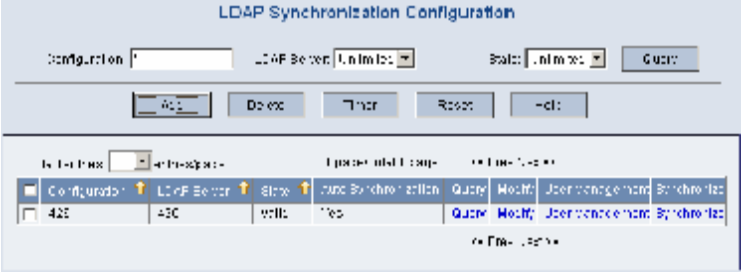


Figure 2-57 LDAP Synchronization Configuration

You can perform adding, deleting, and other related operations on LDAP synchronization configurations.

I. Add LDAP synchronization configuration

To add a LDAP synchronization configuration, you need to input its basic information and select the correspondence between the attributes of CAMS accounts and those on the LDAP server.

On the page shown in Figure 2-57, click <Add> to enter the [Add LDAP Synchronization Configuration] page to configure the basic

information of this LDAP synchronization configuration, as shown in Figure 2-58.

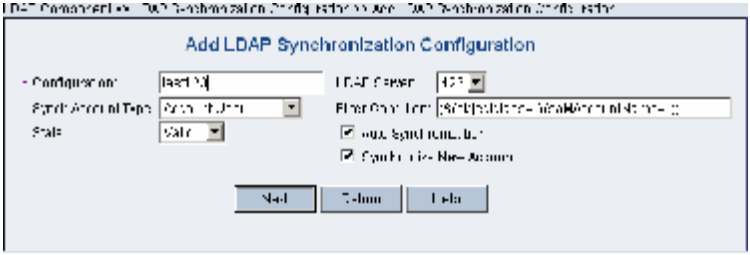


Figure 2-58 Add LDAP Synchronization Configuration (1)

The main parameters on this page are described as follows:

- Configuration: Name of this LDAP synchronization configuration.
- LDAP Server: Name of the LDAP server that the synchronization configuration is applicable to.
- Synch Account Type: Sets the type of the accounts on CAMS after they are synchronized from LDAP server. There are two options: account users and preregistered users.
- Filter Condition: Sets the conditions for querying the accounts on the LDAP server.
- State: Indicates whether the synchronization configuration is valid. If it is invalid, it cannot be used, and accordingly the Synchronize link on the page shown in Figure 2-57 will be grayed. If it is valid, it can be used for synchronization.
- Auto Synchronization: Indicates whether to enable automatic synchronization configuration at a specified time.

- Synchronize New Account: Indicates whether to synchronize the new accounts on the LDAP server to CAMS.

After inputting and selecting proper parameters, click <Next> to enter the [Add LDAP Synchronization Configuration] page, as shown in Figure 2-59. Then, you can set the correspondence between the account information on CAMS and the attributes on the LDAP server.

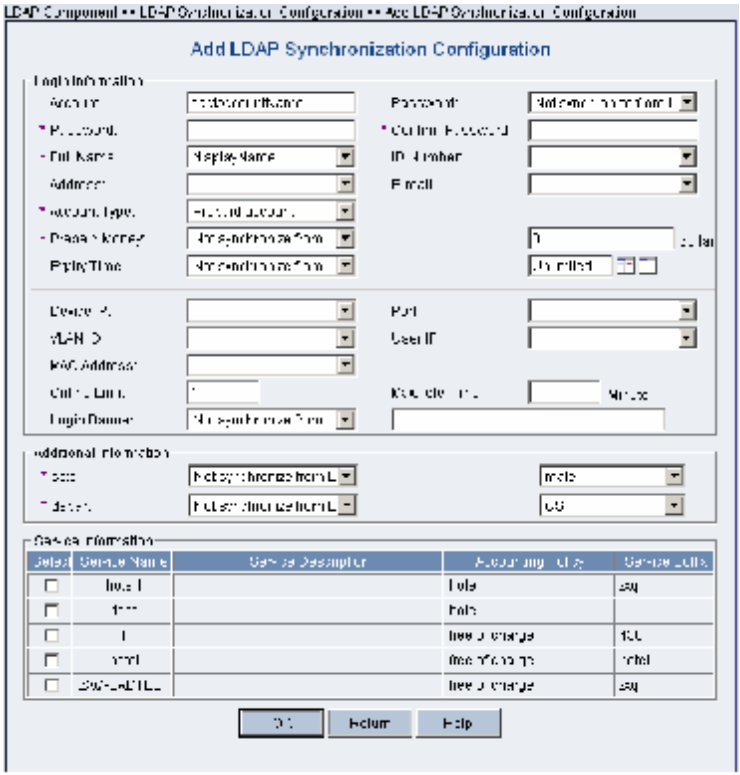


Figure 2-59 Add LDAP Synchronization Configuration (2)

This configuration is similar to the batch import of account users. You can assign the attributes on the LDAP server to the account information as needed. For the descriptions on the parameters, refer to online helps.

Input and select proper parameters, and click <OK> to complete the operation.

II. Delete LDAP synchronization configuration

On the page shown in Figure 2-57, select the check boxes before one or more synchronization configurations, and then click <Delete>. After your confirmation, the selected synchronization configurations will be deleted.

III. Configure timer

This function is used to set the start date and the specific time when the auto synchronization is executed. Once the timer is set, the configurations that support auto synchronization will be executed at the specified time each day. Click <Timer> to enter the [Timer] page shown in Figure 2-60.

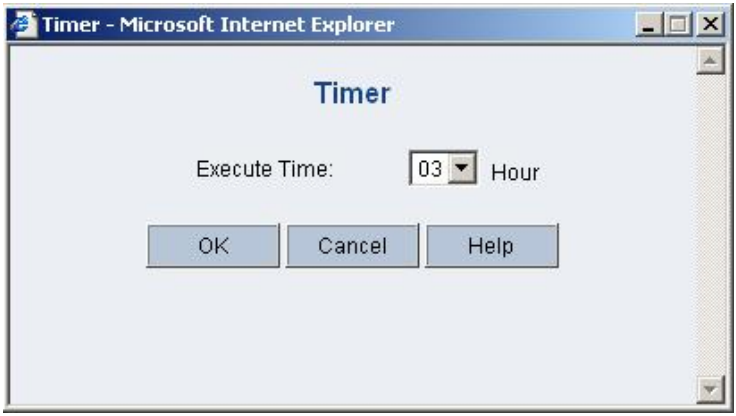


Figure 2-60 Timer

Select a proper time and click <OK> to complete the timer configuration for auto synchronization.

IV. Query LDAP synchronization configuration

On the page shown in Figure 2-57, click <Query> of a configuration to view its details, including the correspondence between the accounts on CAMS and the attributes on the LDAP server.

V. Modify LDAP synchronization configuration

On the page shown in Figure 2-57, click <Modify> of a configuration to enter the [Modify LDAP Synchronization Configuration] page. This page is similar to the [Add LDAP Synchronization Configuration] page, and its descriptions are omitted here.

& Note:

On the [Modify LDAP Synchronization Configuration] page, the three parameters (Configuration, LDAP Server, and Synch Account Type) cannot be modified.

VI. User management

On the page shown in Figure 2-57, click <User Management> of a configuration item to enter the [LDAP Synchronization Configuration User Management] page, as shown in Figure 2-61.

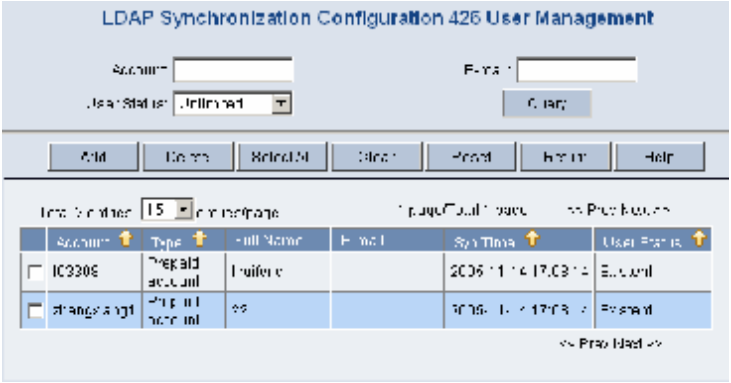


Figure 2-61 LDAP Synchronization Configuration User Management

All available accounts are displayed. After inputting and selecting proper parameters, click <Query> to view the desired accounts. You can also add or delete an account as needed.

- Add: Sets the users on LDAP server to be involved in this synchronization configuration.
- Delete: Sets the users on LDAP server not to be involved in this synchronization configuration.

& Note:

The adding and deleting operations here will not cause the existing accounts in CAMS to be deleted.

VII. Synchronize

On the page shown in Figure 2-57, click <Synchronize> of a configuration item to perform synchronization manually.

2.5.3 LDAP User Export

LDAP user export means exporting the LDAP users that meet the filter conditions to a local file. Subsequently, the administrator can import these users in batches and then bind them to the corresponding LDAP server.

Select [Component Management/LDAP Component/LDAP User Export] to enter the [LDAP User Attribute List] page, as shown in Figure 2-62.

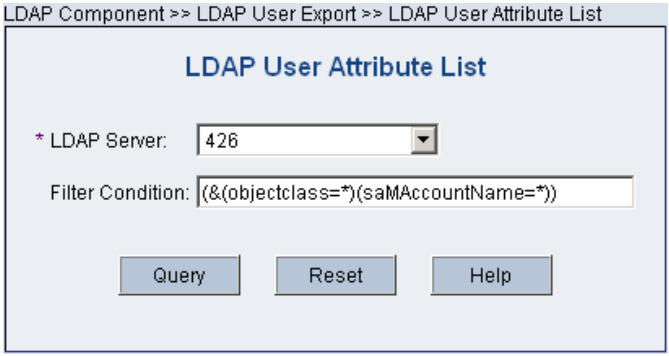


Figure 2-62 LDAP User Attribute List

Select the LDAP server whose users will be exported (in this example, **426** is selected), and then input proper conditions in the [Filter Condition] field. Click <Query> to view the user information that meets the filter conditions.

The format of the filter condition is as follows:

(&(item1=*)(item2=*)(item3=*)…)

(|(item1=*)(item2=*)(item3=*)…)

(!(item1=*)(item2=*)(item3=*)…)

The “item=*” is a sub filter condition. The “item” indicates the attribute name of each node on the LDAP server. The “*” means that all values are matched. The “&” indicates the AND relationship among the sub filter conditions, that is, all these sub conditions must be satisfied simultaneously. The “|” indicates that the OR relationship among the sub filter conditions, that is, only one of these sub conditions needs to be satisfied. The “!” indicates the NOT relationship among the sub filter conditions, that is, neither of these sub conditions needs to be satisfied.

Figure 2-62 shows that the filter condition is:

(&(objectclass=*)(saMAccountName=*))

It means querying the users who have both the attributes of objectclass and saMAccountName.

Click <Reset>, and the default filter conditions will be restored.

Caution:

The users who do not have the attributes specified in the filter condition will not be displayed.

On the page shown in Figure 2-62, click <Query> to enter the [Export File Settings] page shown in Figure 2-63.

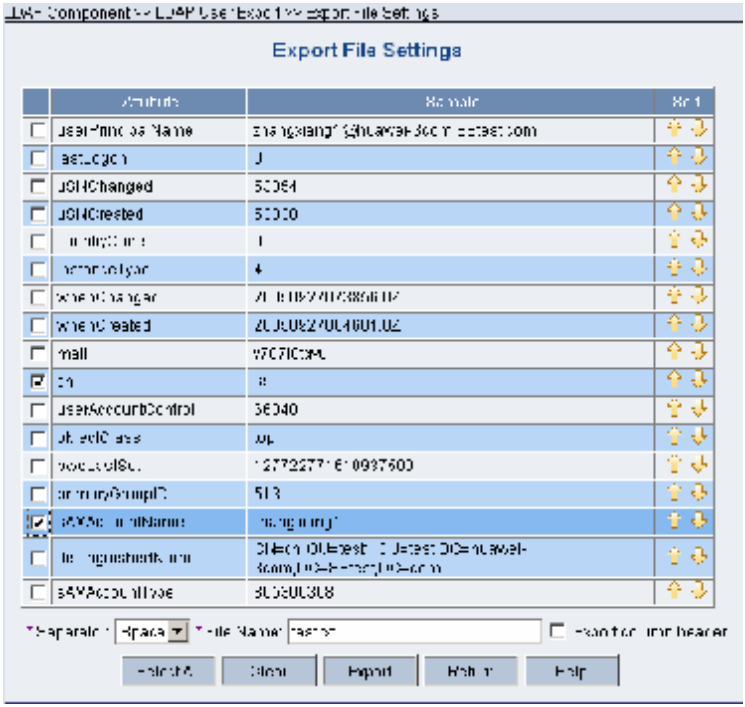


Figure 2-63 Export File Settings

The information of the first user that meets the filter conditions will be displayed and the main parameters are described as follows:

- Attribute: The names of all attributes that are included in the user information.
- Sample: One example of the attribute.
- Sort: You can click ⇧ or ⇩ to sort the attributes. The attributes will be ordered in this manner when they are exported.

- Separator: The separator between two attributes in the exported user information file. The options are: “Space”, “TAB”, “,”, ”;”, “#”, and “$”.
- File Name: Name of the file to save the exported data.
- Export column header: If this check box is selected, the first row of the exported user information file will display the names of the attributes.

Select the attributes to be exported (for example, cn and saMAccountName) and the separator, input a file name, and then click <Export>. The prompt window shown in Figure 2-64 pops up, displaying the export progress.

Figure 2-64 Window prompting the export progress

If the operation succeeded, the [Operation succeeded] page appears, as shown in Figure 2-65.

Operation succeeded.
Operation succeeded.
Export LDAP Data succeeded.
Totally exported 2 users, the exported file is saved under the E:\cams\camsfiles\ldap\ directory on the server.
To get the file right now, click , and keep it safe.
OK

Figure 2-65 Operation succeeded

Click to view the exported data, or save them to a local file. Then, you can click <OK> to return to the [LDAP User Attribute List] page.

2.5.4 Configuration Example

In an enterprise, each employee has an individual mail box with the company domain. The account information of all mail boxes is managed by the LDAP server.

To enhance management, CAMS is introduced to perform user authentication. For ease of operation, it is required that the employees undergo authentication using their accounts of mail boxes. In this case, the CAMS platform, LAN access service component and LDAP service component must be installed. The specific configurations are as follows:

I. Add LDAP server

Click <Add> on the [LDAP Server Management] page to enter the [Add LDAP Server] page.

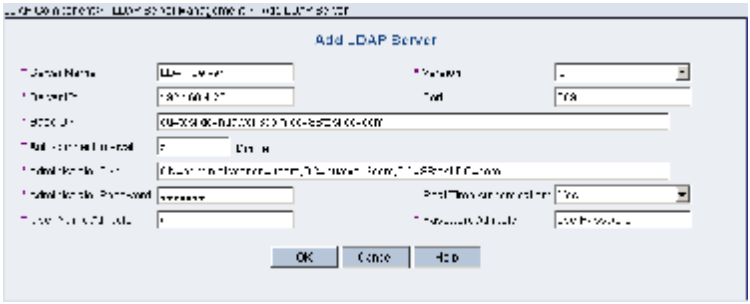


Figure 2-66 Add LDAP Server

Pay attention to the Real Time Authentication check box.

- If **Yes** is selected, the access users will be authenticated by the LDAP server directly. CAMS only functions to forward packets.
- If **No** is selected, the access users will be authenticated by CAMS, which has synchronized the user information from the LDAP server. However, if CAMS cannot synchronize the passwords from some LDAP servers, that is, the synchronized passwords are null, CAMS needs to establish connections with the LDAP server for authentication.

In this example, **Yes** is selected. Thus, the access users will be authenticated by the LDAP server directly.

II. Export user information

The [Export File Settings] page shown in Figure 2-63 enables you to export the user information on the LDAP server.

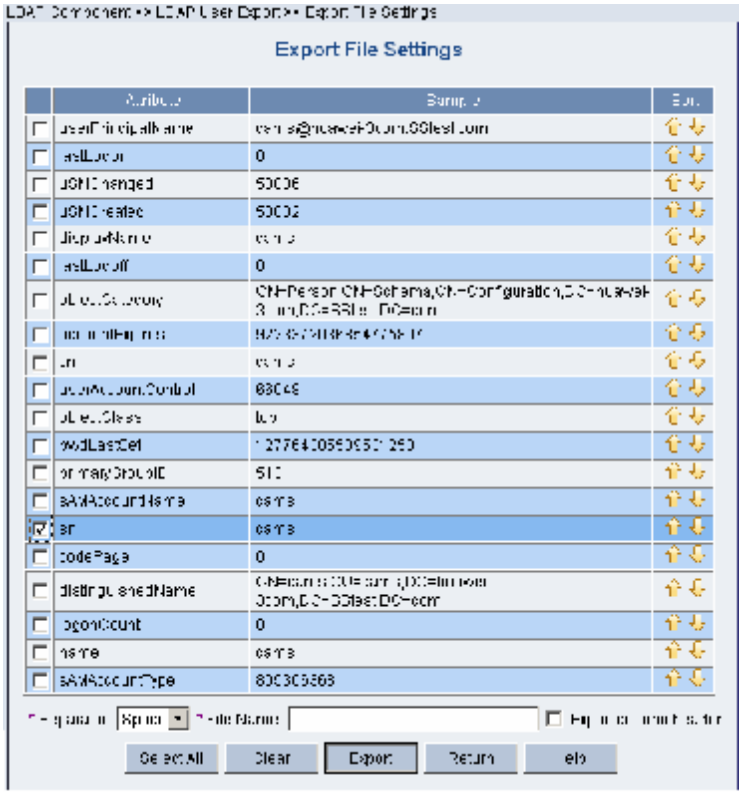


Figure 2-67 Export LDAP user information

Select the attribute name “cn” or “sn” to be exported. (The corresponding user names vary with different LDAP servers. In this example, **sn** is selected.) Set the file name to save the exported user

information, select the separator (in this example, **Space** is selected), and then click <Export>.

If the operation succeeds, the [Operation succeeded] page appears. You can click the link on this page to save the exported file to the local host.

& Note:

Some LDAP servers identify users with a combination of multiple attributes (for example, cn and sn), but CAMS does not support authentication through these LDAP servers.

III. Import user information to CAMS

Select [User Management/Account User] on the navigation tree to enter the [Account Management] page. Then, you can import the user information in the earlier-mentioned export file to CAMS. For specific operations, refer to section 2.1.1 “Account Management”.

Caution:

Because the user information in the export file is separated by space, you need to select the same separator during the batch import operation. Otherwise, the operation cannot succeed.

IV. User authentication

The success of user authentication depends on the LDAP server.

- When the LDAP server runs normally, users can pass the authentication after inputting the correct e-mail account names and passwords.
- When the LDAP server cannot be connected, the authentication will not succeed.

2.6 Operator Management

Operator management controls roles, operators, passwords and ACL to ensure that CAMS runs securely.

2.6.1 Role Management

& Note:

Because the relationship among the functions of CAMS is complex, the administrator is not recommended to assign rights for the roles too subtly.

The roles correspond to different groups of rights, and the rights of the operators are determined by the selected roles. According to the classification of the rights, CAMS provides four default roles: Security administrator, Service administrator, System administrator and User administrator. They cover almost all rights in CAMS and correspond to the nodes of [Operator Management], [Charges Management] + [Service Management] + [User Data Query & Export], [System

Management] + [Statistic Report], and [User Management] + [User Data Query & Export] respectively.

You can add new roles and modify/delete/query them as needed. Select [Operator Management/Role] to enter the [Role Management] page, as shown in Figure 2-68.

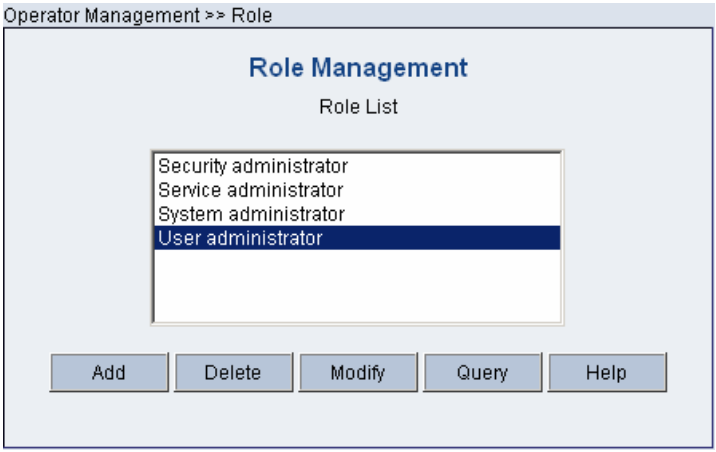


Figure 2-68 Role Management

I. Add role

Click <Add> to enter the [Add Role] page shown in Figure 2-69.

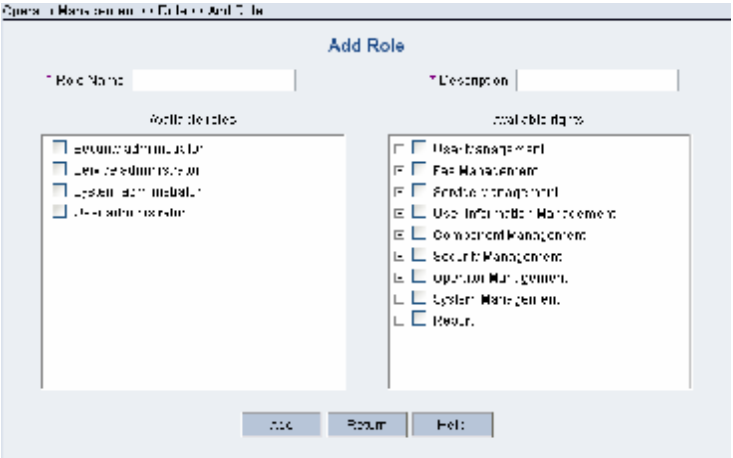


Figure 2-69 Add Role

The parameters are explained as follows:

- Available roles: All roles configured on CAMS are listed. You can combine different roles and assign them to a new role. In this way, the new role owns the rights of all the selected roles.
- Available rights: All system rights provided by CAMS are listed in a tree structure. You can select them as needed.

A role may comprise several roles and rights. That is, you can define new roles by combining the existing roles and rights. The rights of the new roles will be the union of the rights of those existing roles and the newly added rights.

Input a name and description, select roles and rights, and click <Add> to complete the operation.

Caution:

If neither existing roles nor rights are selected for a new role, the role cannot be added successfully.

II. Delete role

On the page shown in Figure 2-68, select the roles to be deleted and click <Delete>. After your confirmation, the selected roles will be deleted.

Caution:

If a role is assigned to some operator or other roles, it cannot be deleted. For the explanations of the operators, refer to section 2.6.2 "Operator Management ".

III. Modify role

Caution:

You are not recommended to modify the default roles predefined by the system.

On the page shown in Figure 2-68, select the role that you want to modify and click <Modify> to modify its roles and rights included.

IV. Query role

On the page shown in Figure 2-68, select a role and click <Query> to query its description, roles, and rights.

& Note:

If you assign another role to a new role, the new role will own all rights that are owned by the role assigned to it. When you delete, modify or query the new role, these rights will not be displayed in the [Available rights] list.

2.6.2 Operator Management

Apart from the default operator “ADMIN”, you can also add operators with different rights to facilitate management.

Select [Operator Management/Operator] on the navigation tree to enter the [Operator Management] page, as shown in Figure 2-70.

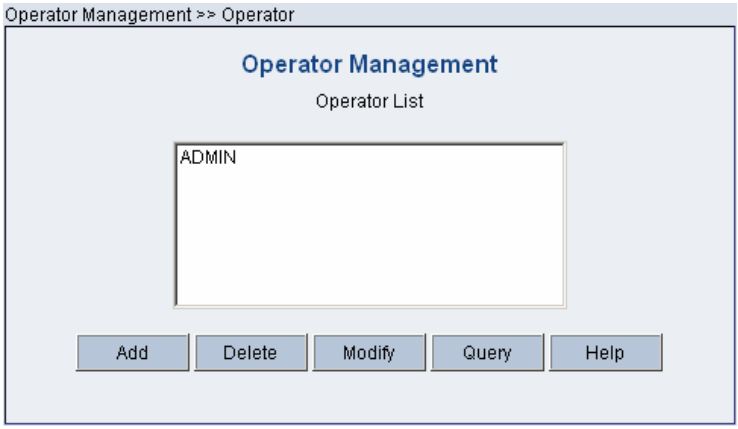


Figure 2-70 Operator Management

I. Add operator

Click <Add> to enter the [Add Operator] page, as shown in Figure 2-71.

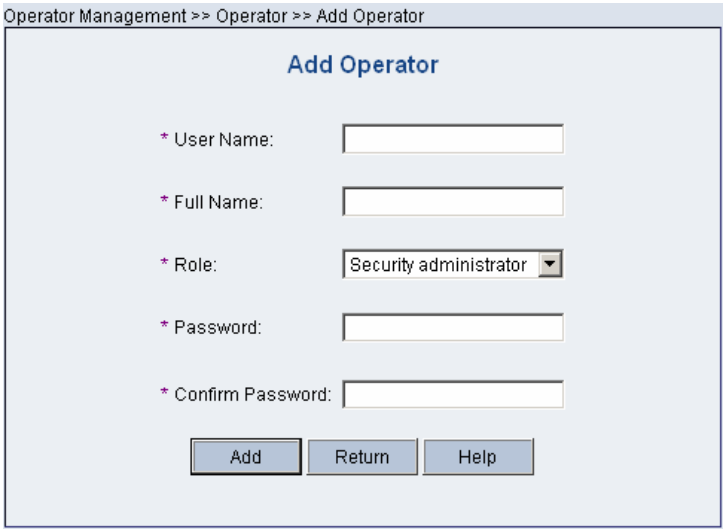


Figure 2-71 Add Operator

After inputting the user name, full name, password, confirm password and selecting a role, you can click <Add> to add an operator.

II. Delete operator

On the page shown in Figure 2-70, select an entry, and click <Delete> to enter the [Delete Operator] page shown in Figure 2-72.

Figure 2-72 Delete Operator

Click <Delete> to complete the operation.

& Note:

- The system administrator “ADMIN” cannot be deleted.
- Online operators can be deleted, but they cannot continue any management operations after being deleted.

III. Modify operator

On the page shown in Figure 2-70, select an entry and click <Modify> to enter the [Modify Operator] page shown in Figure 2-73.

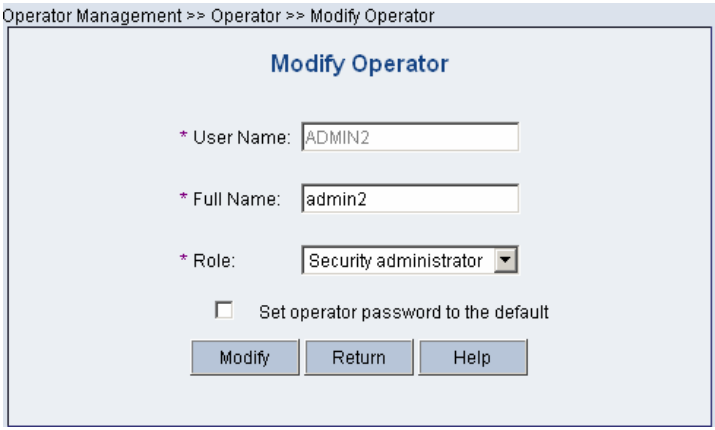


Figure 2-73 Modify Operator

If you select the Set operator password to the default check box, the password will default to “password”.

You can also modify the full name and role of the operator. After inputting and selecting proper values, click <Modify> to complete the operation.

& Note:

The system administrator “ADMIN” cannot be modified.

IV. Query operator

On the page shown in Figure 2-70, select an entry and click <Query> to view the full name, and roles and rights of the operator.

2.6.3 Change Password

This function is used to change the password of the current operator. To ensure that the system runs securely, you are recommended to change the passwords of the operators regularly.

Select [Operator Management/Change Password] on the navigation tree to enter the [Change Password] page shown in Figure 2-74.

Figure 2-74 Change Password

After inputting the old password, new password and confirm password, you can click <Modify> to complete the operation.

2.6.4 ACL Management

Access control is used to control user accesses to CAMS configuration console. Access control list (ACL) management involves adding and deleting the entries for the ACLs.

The ACLs for CAMS consist of a permitted address list and a prohibited address list. You can configure them to produce different access control effects.

- If both the permitted and prohibited address lists are empty, no addresses are limited.
- If there are entries in the permitted address list but the prohibited address list is empty, users can access CAMS configuration console using the addresses configured in the permitted address list only.
- If the permitted address list is empty but there are entries in the prohibited address list, users can access CAMS configuration console using all addresses except those configured in the prohibited address list.
- If there are entries in both the permitted and prohibited address lists, users can access CAMS configuration console using the addresses configured in the permitted address list but not configured in the prohibited address list.

Select [Operator Management/ACL] on the navigation tree to enter the [ACL Management] page, as shown in Figure 2-75.

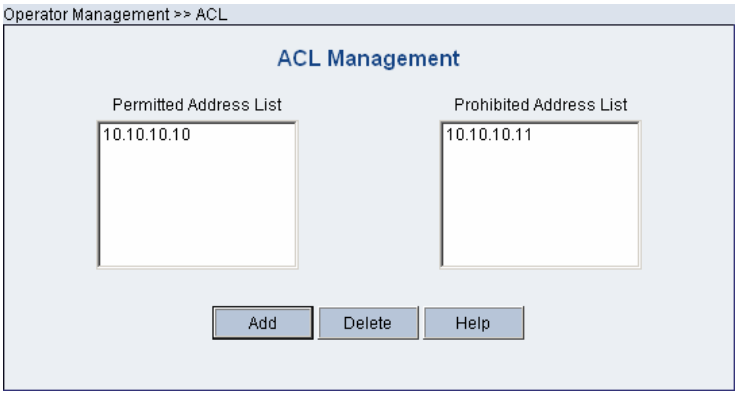


Figure 2-75 ACL Management

I. Add ACL

Click <Add> to enter the [Add ACL] page shown in Figure 2-76.

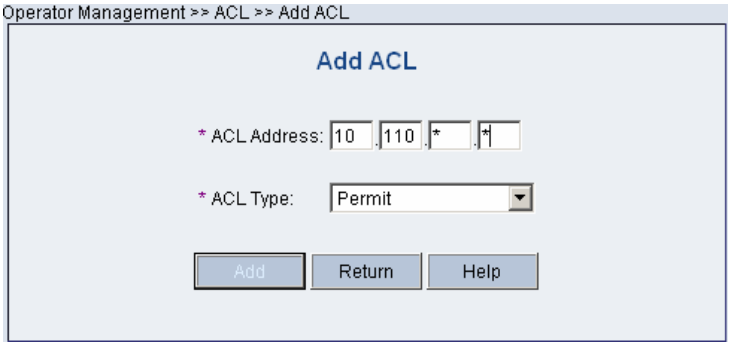


Figure 2-76 Add ACL

The main parameters are explained as follows:

- ACL Address: IP address for an ACL entry. You can input a specific IP address or an address range. For example, if you input 10.110.*.* (as shown in Figure 2-76), it means that the addresses ranging from 10.110.0.0 to 10.110.255.255 are specified.
- ACL Type: The options include Permit and Prohibit.

After inputting and selecting proper parameters, click <Add> to add an ACL entry.

& Note:

- If you input "*" in one of the first three fields for the ACL address, you must input "*" in all the subsequent fields.
- The ACL entries in CAMS do not limit the accesses from the local server. That is, you can log into CAMS from the local server no matter what ACL entries are configured.

II. Delete ACL

On the page shown in Figure 2-75, select an ACL entry, and then click <Delete>. After the confirmation, the ACL entry is deleted.

2.7 System Management

The system management involves the functions of Log Query, Connection Track, Popup Ad, User Notification, Client Upgrade, Mail Configuration, System Configuration, Online User and System Monitor.

2.7.1 Log Query

CAMS enables you to query various logs, including authentication failure logs, system logs, Portal logs, administrator operation logs and user operation logs. In this way, you can trace the CAMS running status and the operations of the end users and the administrators, thus enhancing system management.

I. Authentication failure log

This type of logs records the authentication failures. By querying these logs, the administrator can learn related information of the authentication failures of end users.

Select [System Management/Log Query/Authentication Failure Log] on the navigation tree to enter the [Query Authentication Failure Log] page, as shown in Figure 2-77.

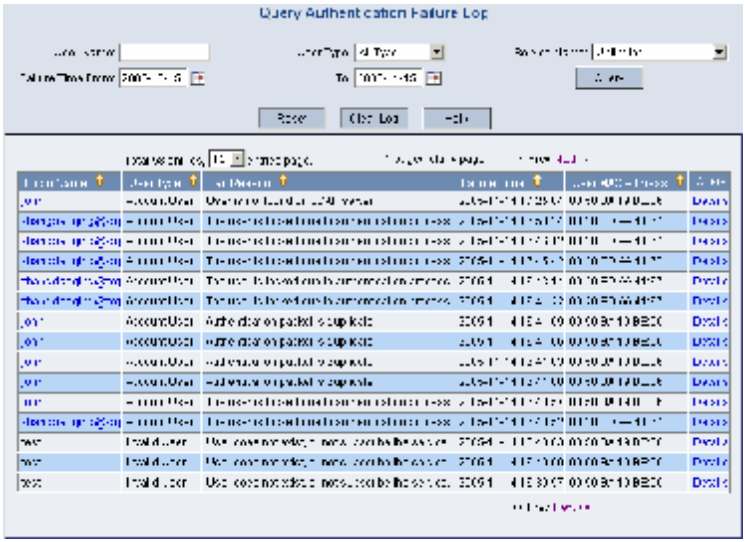


Figure 2-77 Query Authentication Failure Log

All authentication failure logs in the system are displayed. You can click <Details> of an entry to view the specific log information. You can also click <Clear Log> to clear all the queried logs.

Caution:

The function of clearing logs may cause some important information to be deleted, and thus you must use it cautiously.

II. System Log

This type of logs records related information about the operation of CAMS protocol processing module. If the log level is set to “Debugging”, the logs will include the information of the authentication packets, accounting update packets, accounting request packets and response packets, and so on. The system generates one log file each day.

Select [System Management/Log Query/System Log] on the navigation tree to enter the [System Log Management] page, as shown in Figure 2-78.

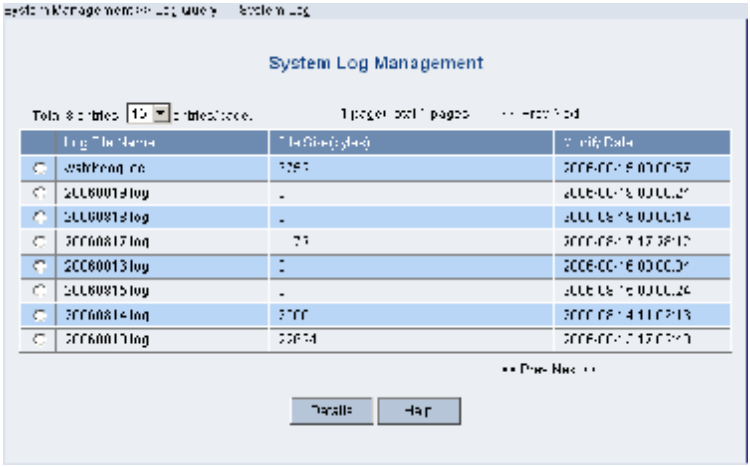


Figure 2-78 System Log Management

The log files for each day are displayed. You can select an entry and click <Details> to view its details. For the meanings of the log information, refer to online helps.

III. Portal log

This type of logs records the information related to the Portal module, including the information of the Portal online users, packet interactions and so on. Select [System Management/Log Query/Portal Log] on the navigation tree to enter the [Log Management] page. This page and the query operation on this page are similar to those for the system log.

IV. Administrator operation log

This type of logs records the adding/deleting/modifying operations of the administrator on the configuration console. You can query the logs to view the history records of these operations.

Select [System Management/Log Query/Administrator Operation Log] on the navigation tree to enter the [Query Administrator Operation Log] page, as shown in Figure 2-79.

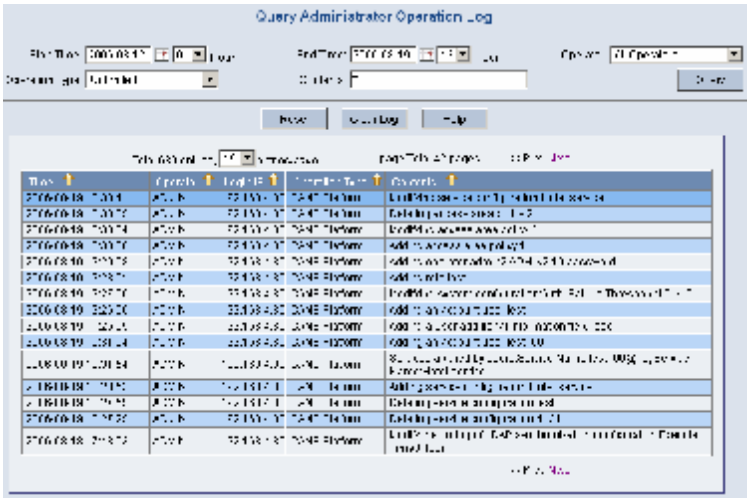


Figure 2-79 Query Administrator Operation Log

All existing logs are displayed. You can click <Clear Log> to clear them.

Caution:

The function of clearing logs may cause some important information to be deleted, and so you must use it cautiously.

V. User operation log

This type of logs records the end users' update operations on the user information or service information on the CAMS Self-service Platform. CAMS provides the log record and query functions on end users' operations to make them traceable.

Select [System Management/Log Query/User Operation Log] on the navigation tree to enter the [Query User Operation Log] page, as shown in Figure 2-80.

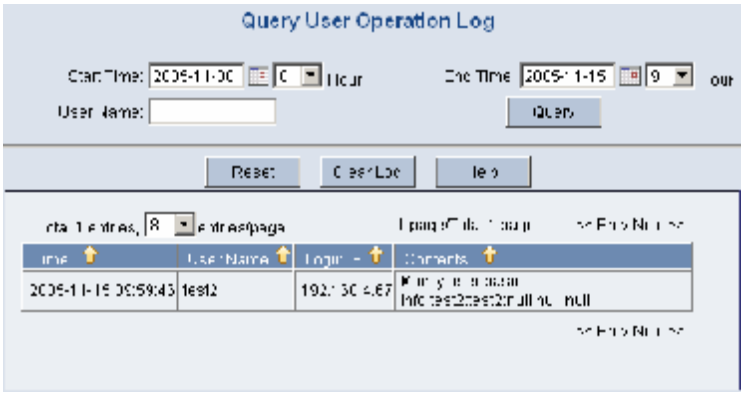


Figure 2-80 Query User Operation Log

All existing logs are displayed. You can click <Clear Log> to clear them.

Caution:

The function of clearing logs may cause some important information to be deleted, and so you must use it cautiously.

& Note:

The saving time of all logs in the system is determined by the parameter “Log Saving Time” configured on the [Service Parameters] page which you can enter by selecting [System Management/System Configuration] on the navigation tree. The logs which are saved longer than this time will be deleted by the system automatically.

2.7.2 Connection Track

Connection track enables you to query the access processes of the end users and thus learn the network usage of a specific user within a specified period of time.

Select [System Management/Connection Track] on the navigation tree to enter the [Connection Track] page, as shown in Figure 2-81.

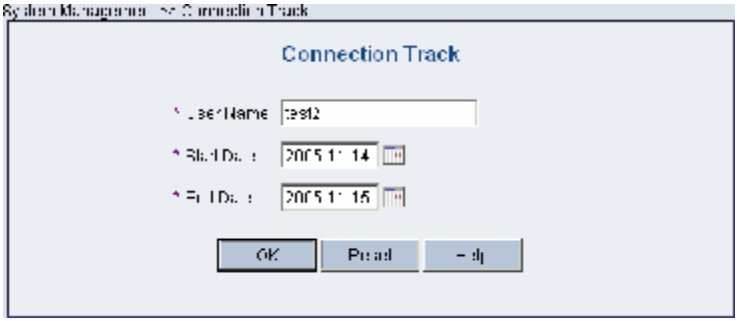


Figure 2-81 Connection Track

Input the user name to be queried and select the proper period of time. Click <OK>, and the queried results will be displayed, as shown in Figure 2-82.

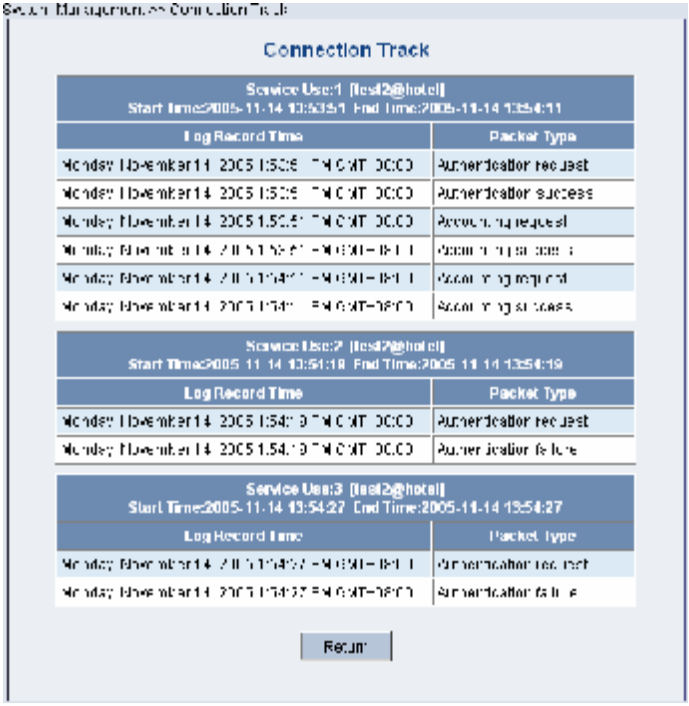


Figure 2-82 Page displaying the queried results

The usage of all services within the specified period of time is displayed, including the start time, end time, and related log information. You can click a specific log to view its details.

& Note:

In order not to affect the system performance, you are recommended to set the period of time to be no more than three days.

2.7.3 Popup Ad

This function is used to set the advertisements for the login page of the CAMS Self-service Platform. When you enable the popup ad function and configure its related information, the proper advertisements will pop up when the end users access the CAMS Self-service Platform. The ad file can be saved on CAMS or in local compressed file. You may also select **Ad file set last time** when you reconfigure the popup ad.

The settings for the popup ad vary with the ad file saving path. The [Popup Ad Management] page where **On CAMS** is selected from the Ad File Position drop-down list is shown in Figure 2-83.

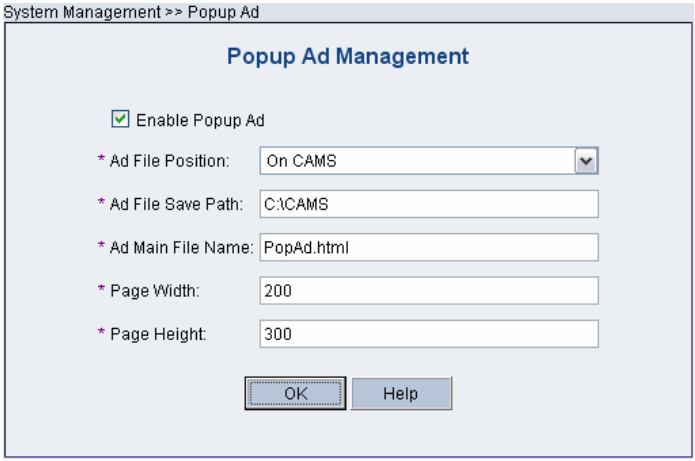


Figure 2-83 Popup Ad Management (1)

You need to configure the ad file save path, ad main file name, page width, and page height.

& Note:

- The ad file must be saved in an independent folder. Because all files and sub folders in this folder are treated as the ad files and their attached files, the system must have read right to this folder and all files in it. The total size of all files in this folder cannot exceed 1 MB.
- The ad file save path on the CAMS server must be an absolute path.

If the ad file is saved in the local compressed file, the [Popup Ad Management] page is shown in Figure 2-84.

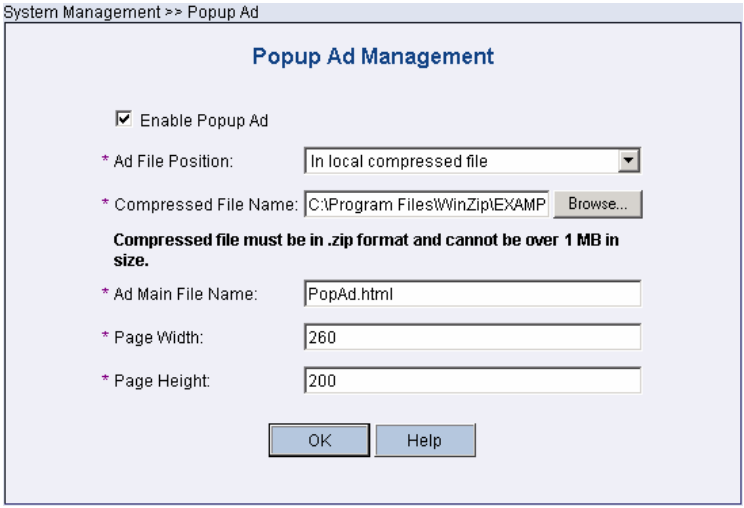


Figure 2-84 Popup Ad Management (2)

When the ad file is saved in the local compressed file, you need to specify a local save path. Then, you can configure the ad main file name, page width and page height. Click <OK>, and the system will upload the compressed file to CAMS.

Caution:

The compressed file must in .zip format, which can be generated with the help of compression tools such as WinZip. Ensure that the main file must be under the root directory of the compressed package. The files in the compressed package cannot use Chinese names, and the size of the compressed file cannot exceed 1 MB.

Only one advertisement pops up each time. The service providers can modify the related files of the ad pages to make different advertisements pop up at different times. You can also modify the contents of a configured popup ad file. When modifying the popup ad settings, you can select the file position from the three options: On CAMS, In local compressed file, and Ad file set last time. The first two pages for modifying popup ad are the same as that for adding popup ad. To modify the size of the popup ad, you can select **Ad file set last time** from the Ad File Position drop-down list on the [Popup Ad Management] page, as shown in Figure 2-85.

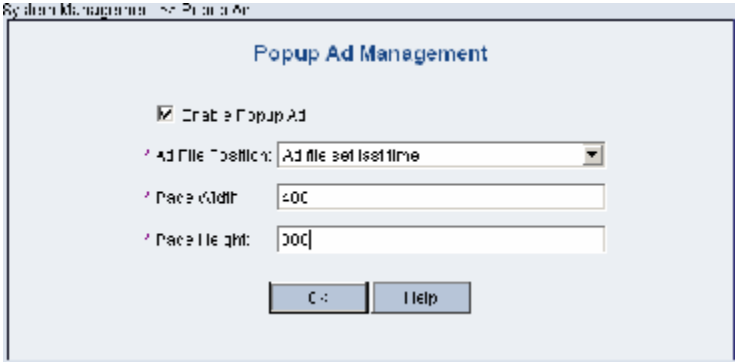


Figure 2-85 Popup Ad Management (3)

Input a new page width and page height, and click <OK> to modify the size of the popup ad.

You can also clear the Enable Popup Ad check box to cancel the popup ad.

2.7.4 User Notification

The client will prompt notification customized on CAMS for users who have passed the authentication.

Select [System Management/User Notification] on the navigation tree to enter the [User Notification] page, as shown in Figure 2-86.

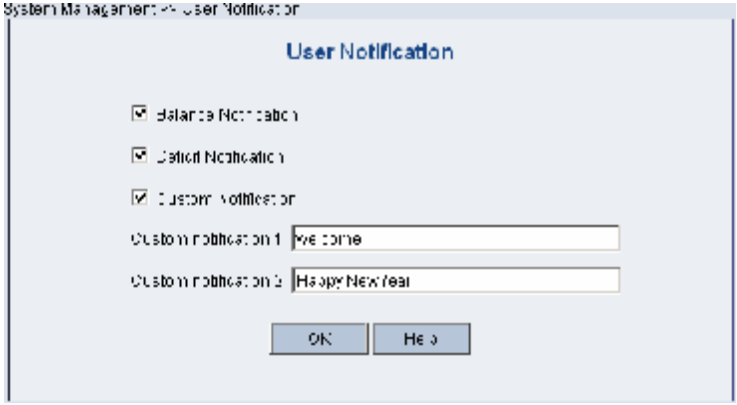


Figure 2-86 User Notification

As shown in Figure 2-86, if you select the first two check boxes, the balance and deficit information will be prompted to users. If the Custom Notification check box is selected, you can customize up to two notifications.

2.7.5 Client Upgrade

CAMS provides the auto-upgrade function on the client.

Select [System Management/Client Upgrade] on the navigation tree to enter the [Client Upgrade Management] page, as shown in Figure 2-87.

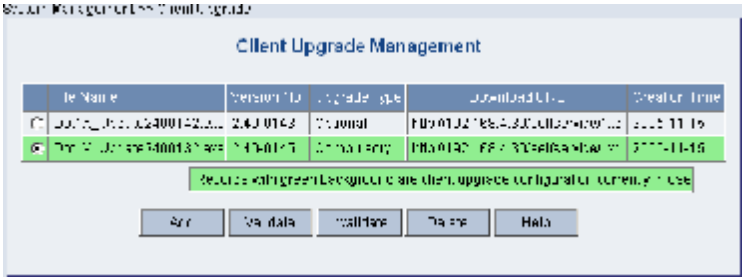


Figure 2-87 Client Upgrade Management

The available upgrade versions are displayed. The item with green background is the valid client version. When users are authenticated through the client, if the client version is lower than the valid version displayed on this page, CAMS upgrades the client automatically.

I. Add version

On the page shown in Figure 2-87, click <Add> to enter the [Add client upgrade version] page shown in Figure 2-88.

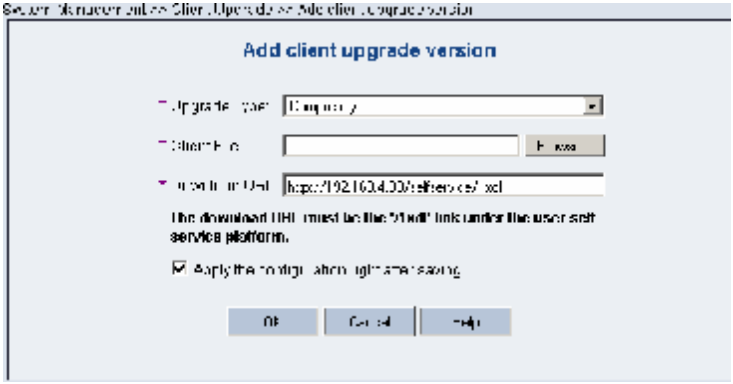


Figure 2-88 Add client upgrade version

The upgrade type is either compulsory or optional. The former indicates that CAMS performs compulsory upgrade on the client. Otherwise, the users cannot pass authentication. The latter indicates that the upgrade begins only after the users confirm the prompt given by the system. The users can access the network even if the client is not upgraded immediately. The users need to undergo authentication once again after the client is upgraded successfully.

After inputting and selecting proper parameters, click <OK> to complete the operation.

& Note:

By default, the client newly added becomes the valid version.

II. Determine the current valid version

On the page shown in Figure 2-87, select a client version and click <Validate> to validate it. Its background will turn to green, and the old valid version will be invalidated.

You can click <Invalidate> to invalidate all displayed versions. That is, the system does not check the client version when the users are authenticated.

III. Delete version

On the page shown in Figure 2-87, select a client version and click <Delete>. After the confirmation, the selected version will be deleted.

& Note:

After the valid version is deleted, no other versions become valid immediately.

2.7.6 Mail Configuration

Mail configuration provides a means for the users to interact with CAMS. With the mail configuration, the password can be retrieved and the deficit can be notified.

I. Password retrieve by mail

Select [System Management/Mail Configuration] on the navigation tree to enter the [Select mail configuration item] page, as shown in Figure 2-89.

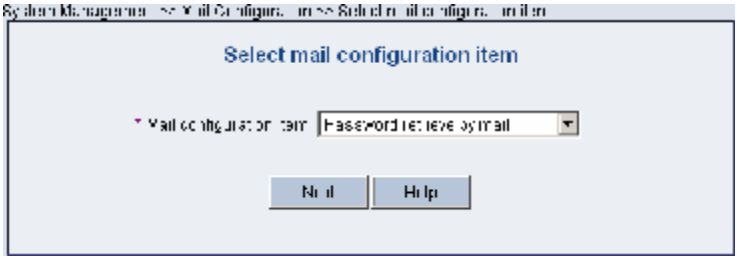


Figure 2-89 Select mail configuration item

By default, the **Password retrieve by mail** is selected. Then, you can click <Next> to enter the [Password retrieve by mail] page, as shown in Figure 2-90.

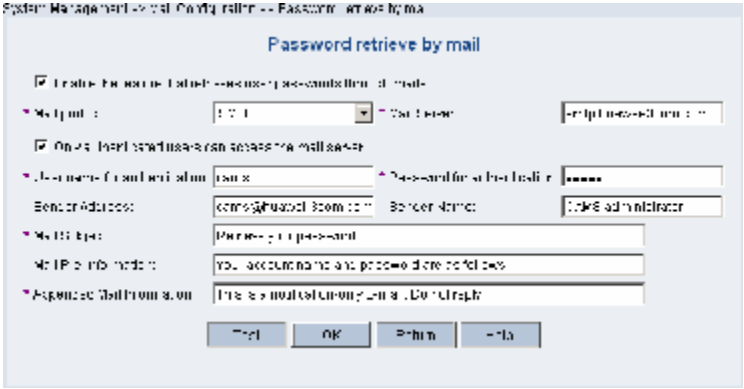


Figure 2-90 Password retrieve by mail

Select the Enable the feature that retrieves user passwords through mails check box, and the password retrieve function is enabled. (At this time, the Forget Password link will be available on the login page of the CAMS Self-service Platform.) For the descriptions of these parameters, refer to online helps.

Click <Forget Password> on the CAMS Self-service Platform to enter the [Get User Password] page. After inputting the correct user name, click <OK>. The system will send mails to the registered mail box automatically, as shown in Figure 2-91.

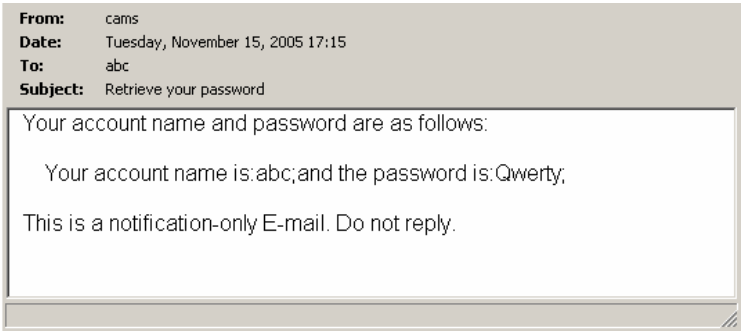

From: cams
Date: Tuesday, November 15, 2005 17:15
To: abc
Subject: Retrieve your password
Your account name and password are as follows:
Your account name is:abc;and the password is:Qwerty;
This is a notification-only E-mail. Do not reply.

Figure 2-91 Example of password retrieve by mail

II. Mail notification of deficit

On the page shown in Figure 2-89, select **Mail notification of deficit** and click <Next> to enter the [Mail notification of deficit] page, as shown in Figure 2-92.

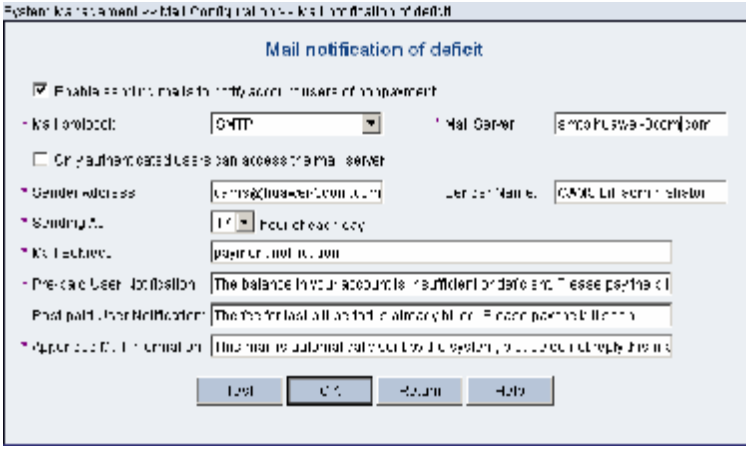


Figure 2-92 Mail notification of deficit

Select the Enable sending mails to notify account users of nonpayment check box, and the mail notification of deficit is enabled. For the descriptions of these parameters, refer to online helps.

According to configurations shown in Figure 2-92, the system sends the notification mails to all nonpayment users at 22:00:00 each day, as shown in Figure 2-93.

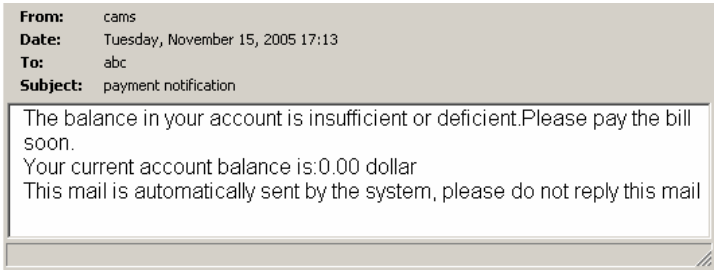

From: cams
Date: Tuesday, November 15, 2005 17:13
To: abc
Subject: payment notification
The balance in your account is insufficient or deficient.Please pay the bill soon.
Your current account balance is:0.00 dollar
This mail is automatically sent by the system, please do not reply this mail

Figure 2-93 Example of mail notification of deficit

2.7.7 System Configuration

System configuration allows you to configure service parameters, policy service parameters, operating parameters, access devices, alarm mails, roaming, domestic currency units, and certificate authentication policy. Note that the Roaming configuration item appears only when you select **Yes** from the Whether to enable roaming drop-down list on the [Operating Parameters Configuration] page.

Select [System Management/System Configuration] on the navigation tree to enter the [System Configuration] page, as shown in Figure 2-94.

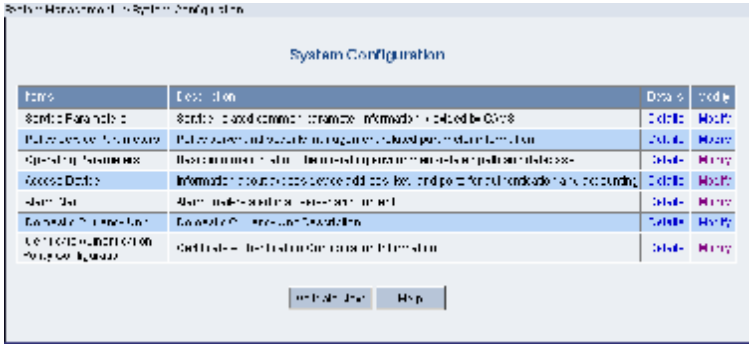


Figure 2-94 System Configuration

I. Service parameters

Service parameters include the parameters related to services. The CAMS management settings and self service platform & authentication client settings are involved.

On the page shown in Figure 2-94, click <Details> of the Service Parameters item to enter the [Service Parameters] page, as shown in Figure 2-95.

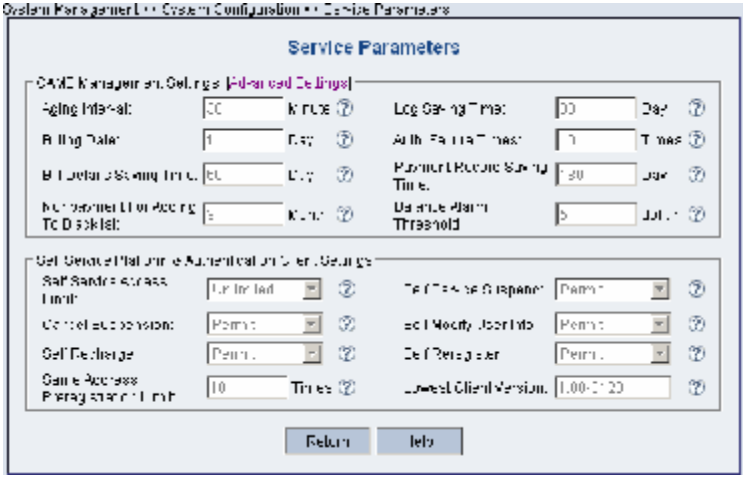


Figure 2-95 Service Parameters

The parameters related to CAMS management settings and self service platform & authentication client settings are displayed. You can also click <Advanced Settings> to display all parameters.

When you position the cursor over the icon , a prompt window pops up automatically, displaying the descriptions and input limitations of the corresponding parameter, as shown in Figure 2-96.

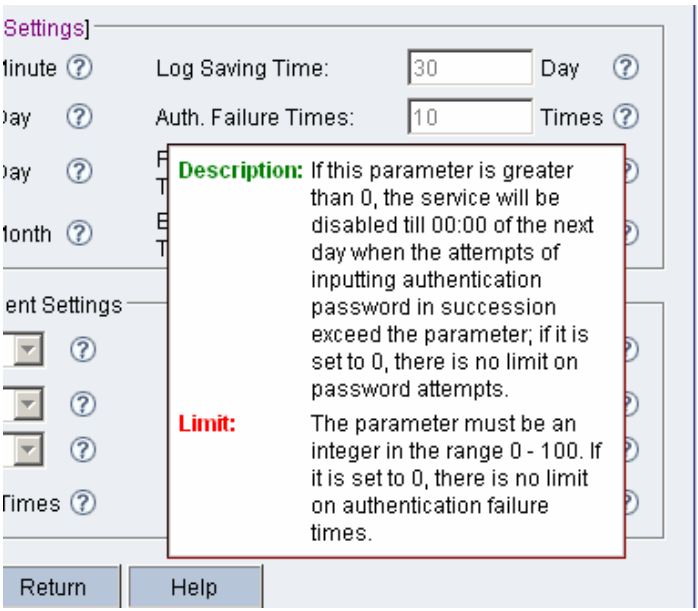

Settings]
Log Saving Time:
30
Day
Auth. Failure Times:
10
Times
Description: If this parameter is greater than 0, the service will be disabled till 00:00 of the next day when the attempts of inputting authentication password in succession exceed the parameter; if it is set to 0, there is no limit on password attempts.
Limit: The parameter must be an integer in the range 0 - 100. If it is set to 0, there is no limit on authentication failure times.
Return
Help

Figure 2-96 Window prompting the descriptions and input limitations of the parameters

The page for modifying service parameters is similar to the page shown in Figure 2-95 and its descriptions are omitted.

II. Policy service parameters

For related descriptions, refer to *CAMS EAD Security Policy Component User Manual*.

III. Operating parameters

Operating parameters include the parameters related to the operation of CAMS. The CAMS common settings, CAMS protocol processing module settings and CAMS configuration module settings

are involved. On the page shown in Figure 2-94, , click <Modify> of the Operating Parameters item to enter the [Operating Parameters Configuration] page, as shown in Figure 2-97.

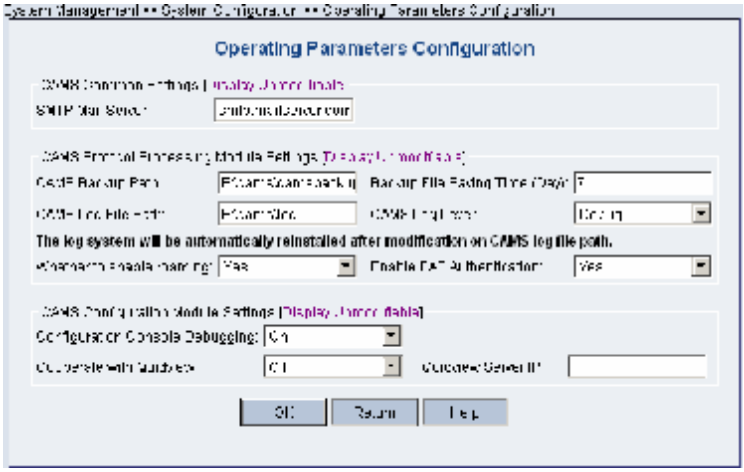

Operating Parameters Configuration
The log system will be automatically reinstalled after modification on CAMS log file path.

Figure 2-97 Operating Parameters Configuration

By default, the page only displays the parameters that can be modified. You can click <Display Unmodifiable> to view all parameters. For the explanations of the parameters, refer to online helps.

IV. Access device

Access devices refer to the devices (such as switches and access servers) which cooperate with CAMS to perform authentication and accounting. Only the access devices which are configured successfully here can exchange packets with CAMS normally to perform authentication and accounting. For LAN access services, the devices refer to various switches that support related features.

On the page shown in Figure 2-94, click <Modify> of the Access Device item to enter the [Access Device Configuration] page, as shown in Figure 2-98.

Figure 2-98 Access Device Configuration

This page enables you to add, modify or delete access devices.

The descriptions on the main parameters of the access devices are shown in Table 2-2.

Table 2-2 Main parameters of the access devices

Parameter	Options	Description
Service Type	Device Management Service	Indicates that the device can be managed by the users for device management. For details, refer to section 2.2.3 “User for Device Management”.
	LAN Access Service	Indicates that the device can function as a LAN access device.

Parameter	Options	Description
RADIUS packet type	Standard	Recommended Indicates that the LAN access device and CAMS communicate through RADIUS packets, including the accounting update packets.
	No Accounting Update	Indicates that there are no accounting update packets exchanged between the LAN access device and CAMS. This option is used by some LAN access devices that do not support accounting update packets.

For the meanings of other parameters, refer to online helps.

Caution:

The port used for authentication must be inputted first and then that for accounting. The ports 1812 and 1813 are respectively the authentication port and accounting port used by standard RADIUS.

V. Alarm mail

This function is used to set related information of the alarm mails, including the alarm level and the mail information of the administrator.

Note that this configuration is different from that on the page which you can enter by selecting [System Management/Mail Configuration]. The former makes the administrator learn the running status of CAMS timely, while the latter targets at end users.

On the page shown in Figure 2-94, click <Modify> of the Alarm Mail item to enter the [Alarm Mail Configuration] page, as shown in Figure 2-99.

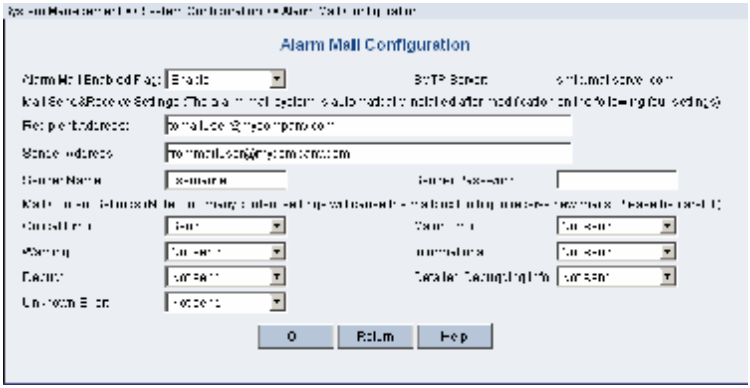


Figure 2-99 Alarm Mail Configuration

This page displays the parameters related to alarm mails and the alarm levels at which alarm mails need to be sent. For the descriptions of these parameters, refer to online helps.

VI. Roaming configuration

Roaming configuration is used to configure the domain information used in the roaming service. Based on this information, CAMS can process the services roaming among different CAMS domains. For the descriptions of roaming management, refer to

section 2.4 “User Account Batch Operation”. On the page shown in Figure 2-94, click <Modify> of the Roaming configuration item to enter the [Roaming service configuration] page, as shown in Figure 2-100.

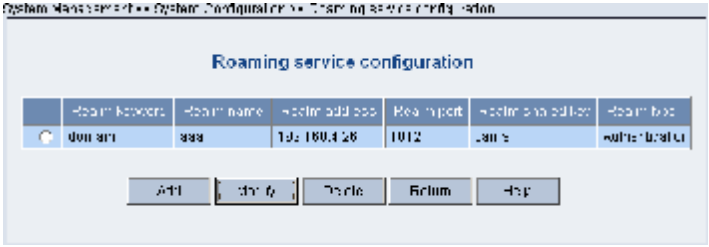


Figure 2-100 Roaming service configuration

Click <Add> to enter the [Add roaming configuration item] page, as shown in Figure 2-101.

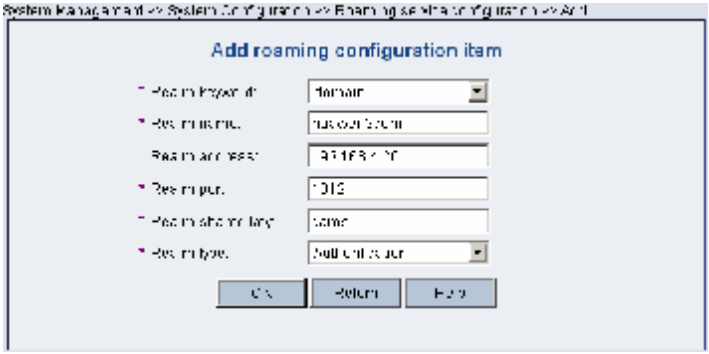


Figure 2-101 Add roaming configuration item

The parameters on this page are explained as follows:

- Realm keyword: Indicates the defined roaming type. Currently, only the “domain” option is available.

- Realm name: Name of the domain where the target CAMS is located.
- Realm address: Indicates the roaming destination address. That is, the packets with the specified domain names will be forwarded to CAMS at this address.
- Realm port: Indicates the roaming target port.
- Realm shared key: Indicates the predefined shared key.
- Realm type: Indicates authentication or accounting packets.

& Note:

By default, the authentication port is 1812, and the accounting port is 1813.

Click <OK> to complete adding a roaming configuration item.

The modifying operations are basically the same as the adding operations, and are omitted here. You can also select an item and click <Delete> to delete it.

The accounting and authentication are indispensable to a complete roaming operation. Thus, when adding a roaming service configuration item, you must configure both the authentication item and the accounting item.

Caution:

If the services configured on CAMS do not need roaming, their suffixes cannot the same as the domain names on the destination CAMS in roaming configuration. Otherwise, when users are authenticated locally, the packets may be forwarded to the destination CAMS, thus leading to authentication failures.

VII. Domestic currency unit

Domestic currency unit is used to set different currency units for accounting as needed in different countries and areas.

On the page shown in Figure 2-94, click <Modify> of the Domestic Currency Unit item to enter the [Modify Domestic Currency Unit] page, as shown in Figure 2-102.

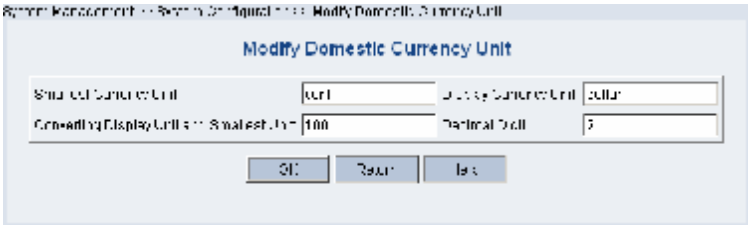


Figure 2-102 Modify Domestic Currency Unit

After inputting correct values in the [Smallest Currency Unit], [Display Currency Unit], [Converting Display Unit and Smallest Unit] and [Decimal Digit] fields respectively, click <OK> to complete setting the currency unit in your country.

Caution:

Because the Domestic Currency Unit item involves accounting, you must configure its related parameters cautiously.

VIII. Certificate authentication policy

The certificate authentication policy configuration is mainly used to import the root certificate and server certificate into CAMS so that CAMS becomes capable of certificate authentication.

Caution:

The CA type of the certificate server corresponding to the root certificate and server certificate must be an independent root CA. That is, when installing the certificate server, you must select the independent root CA rather than the enterprise root CA. For the installation instructions on the certificate server, refer to materials of related products that provide the certificate service. For the specific operations to obtain the root certificate and server certificate, refer to the descriptions on LAN access service configuration examples in *CAMS LAN Access Service Component User Manual*.

On the page shown in Figure 2-94, click <Modify> of the Certificate Authentication Policy Configuration item to enter the [Certificate Authentication Policy Configuration] page, as shown in Figure 2-103.

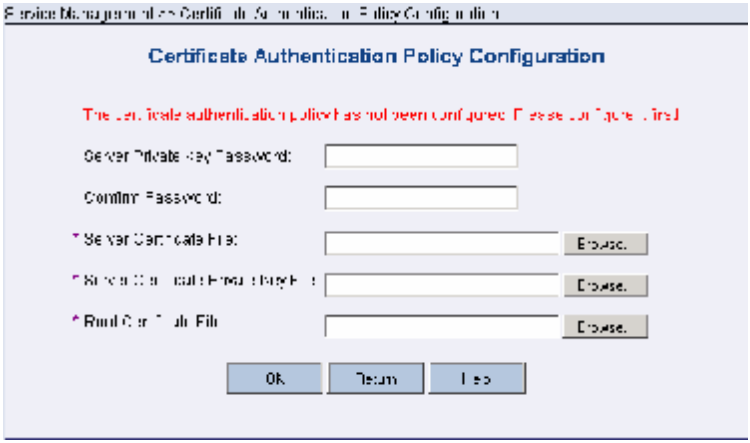


Figure 2-103 Certificate Authentication Policy Configuration

After applying for a certificate from the certification authority (CA), you can export the certificate and save it to a file. On the page shown in Figure 2-103, you can import the exported certificate into CAMS.

& Note:

The complete certificate can be exported in two ways: 1) Export directly the certificate with the private key to a file A; 2) Export the certificate without the private key to a file B1, and export the private key of the certificate to another file B2. To import the complete certificate, you can either import the file A directly or import both B1 and B2.

The main parameters on the page are explained as follows:

- Server certificate file and server certificate private key file: The files save the server certificate and its private key respectively. The server certificate and its private key are used to ensure the validity of CAMS server.
- Server private key password: When the server certificate and its private key are exported separately, you need to input a password to secure the private key file. To import the private key to CAMS server successfully, you need to input the password again.
- Root certificate file: The file saves the root certificate. The root certificate of CAMS server is mainly used to authenticate the client.

The mutual certificate authentications between CAMS server and the client is as follows:

- CAMS server provides the server certificate (with the private key) for the client, and the client authenticates CAMS server using its root certificate.
- The client provides the client certificate (with the private key) for CAMS server, and CAMS server authenticates the client using its root certificate.

Therefore, to implement the mutual certificate authentications between CAMS server and the client, CAMS server must have its certificate (with the private key) and root certificate installed, and so does the client.

On the page shown in Figure 2-103, input and select proper parameters, and click <OK> to import the server certificate (with the private key) and the root certificate into CAMS. The page prompting the successful operation is shown in Figure 2-104.

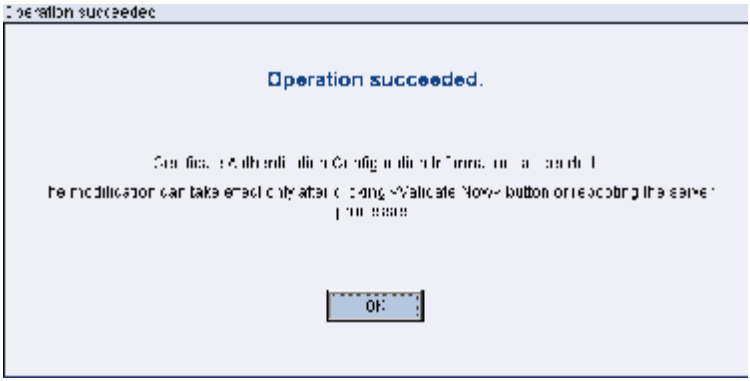


Figure 2-104 Page prompting that the certificate authentication policy configuration succeeded

After that, click <Validate> on the page shown in Figure 2-94. In this way, CAMS server becomes capable of certificate authentication.

2.7.8 Online User

& Note:

When the operators who are able to manage online users log into CAMS normally, they can select [Online User] at the upper right corner of the page at any time to view online users.

To facilitate maintenance on CAMS and management on end users, the system can list all online end users. As long as a user utilizes the services managed by CAMS, the administrator can view related information of the service usage in the list of online users.

Select [System Management/Online User] on the navigation tree to enter the [Online User Management] page, as shown in Figure 2-105.

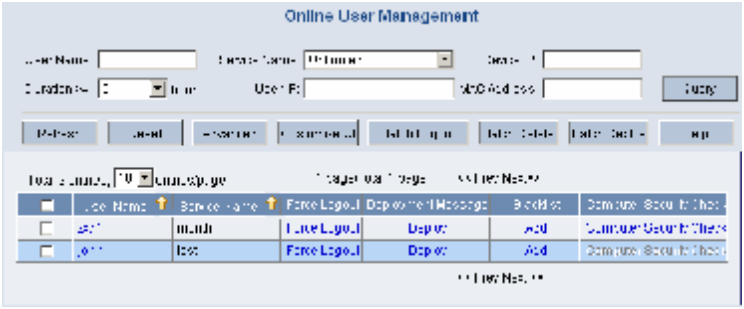


Figure 2-105 Online User Management

The related information of online users is displayed. You can click <Advanced> to customize the information to be displayed.

I. Delete online users

Online users cannot utilize services normally in some cases. For example, when a device restarts abnormally, for an account which allows only one online user, its online user cannot utilize network resources before CAMS checks the user. You can click <Advanced> on the [Online User Management] page to enter the [Advanced Query] dialog box. Input a proper value in the [Suspension Time] field (you are recommended to set this value to be more than three times the interval of sending accounting update packets which is set on the switch). Select one or more users, and click <Batch Delete> to delete them.

Caution:

You cannot delete online users randomly. A deleted online user will not stop using the specified service immediately. This may lead to fee calculation errors. You cannot delete online users to prohibit them from using services unless you are sure that the users are in abnormal state.

II. Force online users offline

When unauthorized users or other abnormal users access the network, the administrator can click <Forced Logout> to force them offline. Note that this does not affect the charging function. The administrator can also select multiple online users and click <Batch Logout> to force them offline in batches.

& Note:

If you enable Endpoint Admission Defense in the item of Policy Service Parameters, this function needs to be supported by devices. Before using the function, you must check whether the device support it. If not, the logout operation cannot succeed.

III. Deploy messages to online users

Online user management supports deploying messages to a single user or a batch of users. To deploy messages to a single user, click <Deploy> of the user, and the [Deploy] dialog box appears. Input the deployed contents and click <OK>. To deploy messages to a batch of users, select the check boxes before multiple users, click <Batch Deploy>, and the [User Information Batch Deploy Settings] dialog box appears. In both cases, the messages will be sent to end users within the interval of sending accounting update packets.

IV. Customize UI

Online user management supports customizing user interfaces. That is, the administrator can adjust the fields to be displayed. Click <Customize UI> to enter the [Online User Interface Management] page, as shown in Figure 2-106.

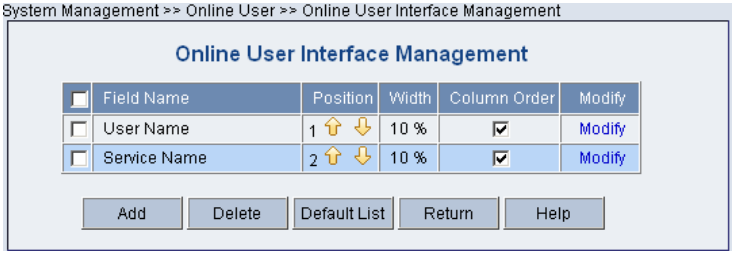


Figure 2-106 Online User Interface Management

The fields that are displayed currently are listed. You can adjust the order of these fields displayed on the page shown in Figure 2-105 by clicking the ⇧ or ⇩ in the Position column. Select the Column Order check box for a field, and then you can click the ⇧ or ⇩ to sort the displayed information. You can also click <Add> or <Delete> to

add or delete the fields to be displayed. The optional fields are shown in Figure 2-107

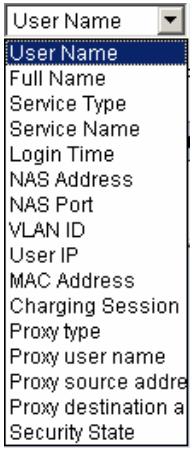


Figure 2-107 Optional fields

You can also click <Default List> to restore the default fields. The default list includes User Name, Full Name, Service Name, Login Time, MAC Address, and User IP.

& Note:

When customizing user interfaces, the old displayed information will be deleted. After returning to the [Online User Management] page, the system refreshes the displayed information according to the new configuration.

2.7.9 System Monitor

& Note:

When the operators that have the system monitor right log into CAMS normally, they can select [System Monitor] on the upper right corner of the page at any time to view the current running status of the system.

To learn the running status of CAMS itself and the current usage of the background system resources, CAMS configuration console provides the system monitor function.

Select [System Management/System Monitor] on the navigation tree to enter the [System Current State Monitor] page, as shown in Figure 2-108.

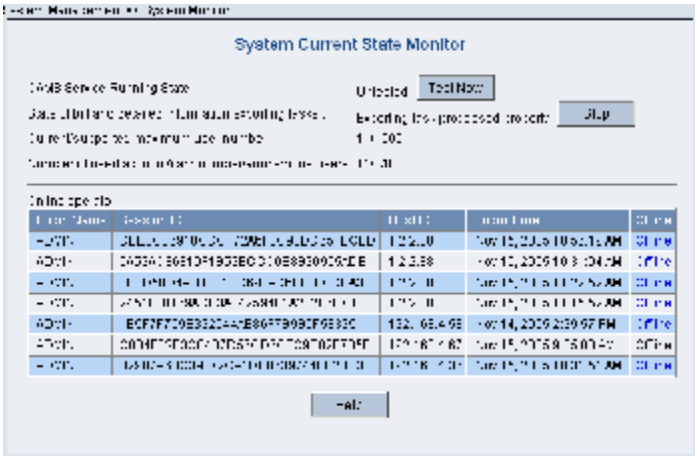


Figure 2-108 System Current State Monitor

The information of online operators is listed at the bottom of the page (the seven ADMINs shown in the figure). You can click <Offline> of other operators to make them offline.

Click <Test Now> to view the running status of the CAMS background. Click <Stop> to stop the tasks of exporting the bills and access details (including the tasks being executed). Meanwhile, the button turns to Start. You can click it to start the tasks once again if necessary. The parameters of Current/supported maximum user number and Number of used account/card number/anonymous users shows the statistics about the current users in the system.

& Note:

- When the anonymous account is enabled, the number of occupied users = anonymous user online limit + the number of accounts except the anonymous account + the number of card users.
- When the anonymous account is disabled, the number of occupied users = the number of accounts except the anonymous account + the number of card users.

2.8 Statistic Report

The statistics report management implements generating, printing and exporting various tables (graphs). Its main purposes include: make statistics on the maximum number of online users at each hour to get the busy hours; make statistics on the service usage each day to get the busy days; make statistics on the user expenditure each month to find important customers; make statistics on the service

usage each month to learn the service operation status; make statistics on the number of existing accounts and that of newly added accounts to comprehend the service development trend.

It functions to display common service information in tables or graphs, which include:

- Monthly (Daily) Service Usage Statistics Report
- Monthly (Daily) Average Service Usage Statistics Report
- Monthly Account Quantity Statistics Report
- Single User Based Monthly Expenditure Statistics Report
- Monthly Average Expenditure Distribution Statistics Report
- Monthly Payable Charge and Payment Comparison Statistics Report
- Hourly Average Online Users Statistics Report
- Operator Toll Record Statistics Report

All of these statistics results can be printed and exported. Currently, the supported export file formats are TXT, EXCEL (comma-separated CSV), XML, and JPEG.

Caution:

- The monthly statistics reports are generated automatically by the system at the end of each month, while the daily statistics reports are processed in real time. Therefore, the latter may respond slower than the former.
- The statistics reports are generated based on the information recorded in CAMS during operations, such as account users, card users, access details, user bill details. If some data source is lost for some reason (for example, the cards are withdrawn forcedly), the monthly and daily statistics reports do not include these lost data.
- If the system has already generated the monthly statistics data and saved them, the deletion of the data source (such as accounting details and bill details) will not affect the generated data.
- The start time and end time for daily statistics must be within 31 days, and that for monthly statistics must be within three years.

Select [Statistic Report] on the navigation tree to enter the [Statistics Report] page, as shown in Figure 2-109.

Figure 2-109 Statistic Report

The names of reports and the supported display forms (marked with a "√") are displayed on the page. When you position the cursor over ⑦, a prompt window pops up automatically, displaying descriptions of the report and its common purposes.

Click the links on the page to configure the corresponding reports.

I. Monthly (Daily) Service Usage Statistics Report

This report makes statistics on the monthly or daily service usage of a single user, all accounts, all cards or all users (including account users and card users) from the start time to the end time by money, duration, traffic or usage times. It can also make statistics based on the payment type (prepaid and ordinary).

The trend of the usage of services is displayed in a plot chart with time as x-axis and usage as y-axis.

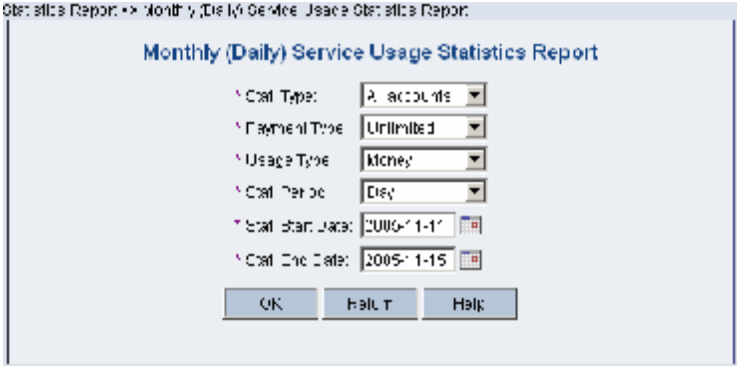


Figure 2-110 Monthly (Daily) Service Usage Statistics Report

For the explanations of these parameters, refer to online helps.

Caution:

The statistics are based on the end time of accesses. For example, if a user gets offline at 01:00:00 on July 2 and the access duration is 5 hours, the 5 hours will be treated as the access duration on July 2. Actually, the service usage of the first four hours is generated on July 1. The usage calculation in the following reports will comply with this rule.

After selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-111 pops up.

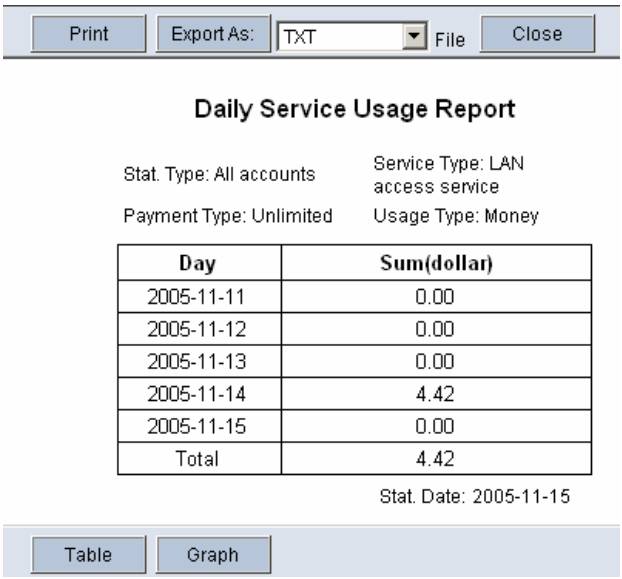


Figure 2-111 Daily Service Usage Report

Click <Print> on top of the page to print the displayed report. Click <Graph> at the bottom of the page, and the statistics result will be displayed in graph. At this time, you can also click <Print> to print the graph.

& Note:

The print operation in this system is implemented through the print function of IE. By default, IE will add header (such as pages) and footer (such as URL links) in the printed result. To delete the header and footer, you can select [File/Page Setup…] to enter the [Page Setup] page. Then, delete the contents in the [Header] and [Footer] fields respectively and click <OK>.

Click <Export As:>, and you can download the statistics result to the local host with different formats. Currently, the supported export file format are TXT, EXCEL (comma-separated CSV), XML, and JPEG (it is used only when the statistics report can be displayed in graph). You can select them from the drop-down list.

& Note:

The same functions mentioned previously exist on the pages of all types of statistics reports, and thus are omitted hereafter.

You can click <Table> or <Graph> at the bottom to refresh the statistics report and switch the format of the displayed results between table and graph.

One example of the Monthly (Daily) Service Usage Statistics Report displayed in graph is shown in Figure 2-112.

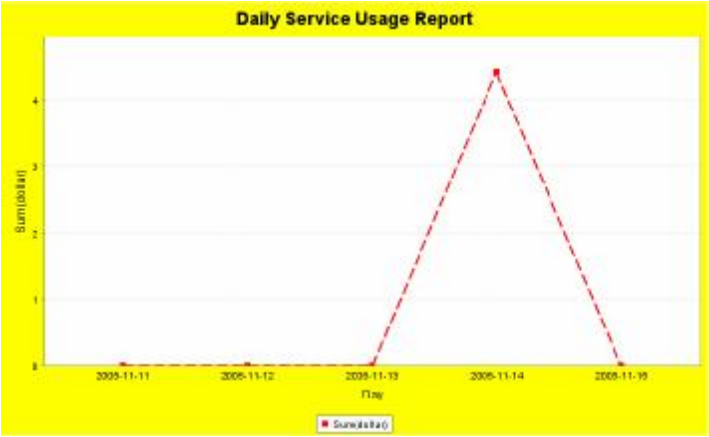


Figure 2-112 Daily Service Usage Report (Graph)

II. Monthly (Daily) Average Service Usage Statistics Report

This report makes statistics on the average of monthly or daily service usage of a user (may use multiple services) or a service.

The difference between Monthly (Daily) Average Service Usage Statistics Report and Monthly (Daily) Service Usage Statistics Report is that the former makes statistics on the monthly (daily) average usage of a user (or a service) within a period of time and the latter makes statistics on the total usage.

The trend of the average usage of services is displayed in a plot chart with time as x-axis and usage as y-axis.

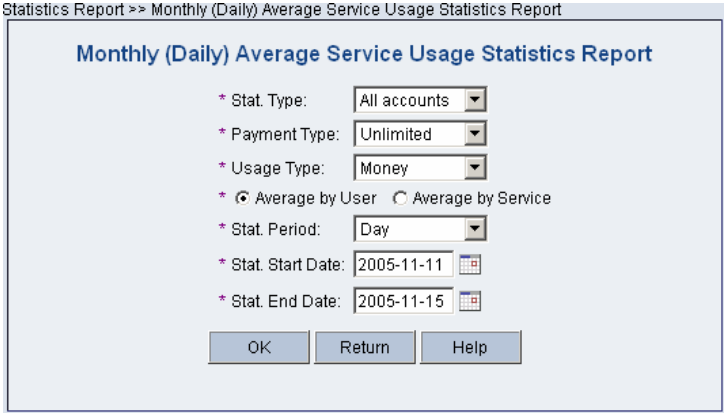

Statistics Report >> Monthly (Daily) Average Service Usage Statistics Report
Monthly (Daily) Average Service Usage Statistics Report
* Stat. Type: All accounts
* Payment Type: Unlimited
* Usage Type: Money
* Average by User Average by Service
* Stat. Period: Day
* Stat. Start Date: 2005-11-11
* Stat. End Date: 2005-11-15
OK
Return
Help

Figure 2-113 Monthly (Daily) Average Service Usage Statistics Report

For the explanations of the parameters, refer to online helps.

Caution:

When the statistics period is a day, only the users with usage records on that day are counted during the statistics on the average usage. Similarly, only the services with usage records on that day are counted. For example, if there are 50 registered users in the system, and only 30 users access the networks that day, the average usage equals the total usage that day divided by 30.

After selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-114 pops up.

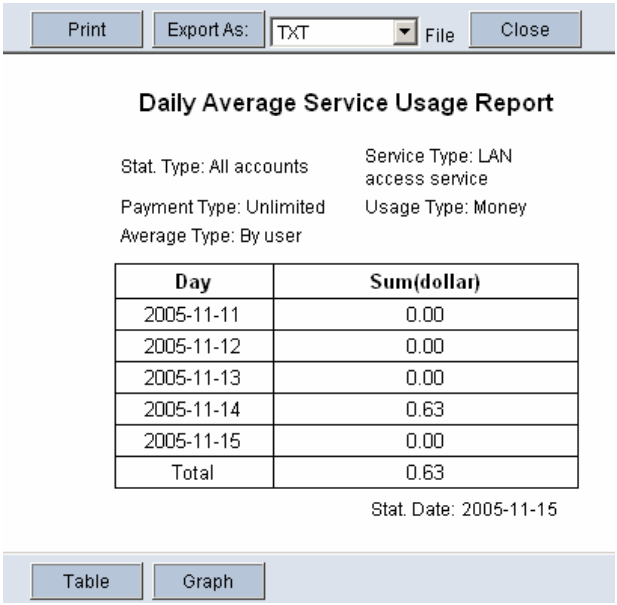


Figure 2-114 Daily Average Service Usage Report

You can click <Table> or <Graph> at the bottom to refresh the statistics report and switch the format of the displayed results between table and graph.

One example of the Monthly (Daily) Average Service Usage Statistics Report displayed in graph is shown in Figure 2-115.

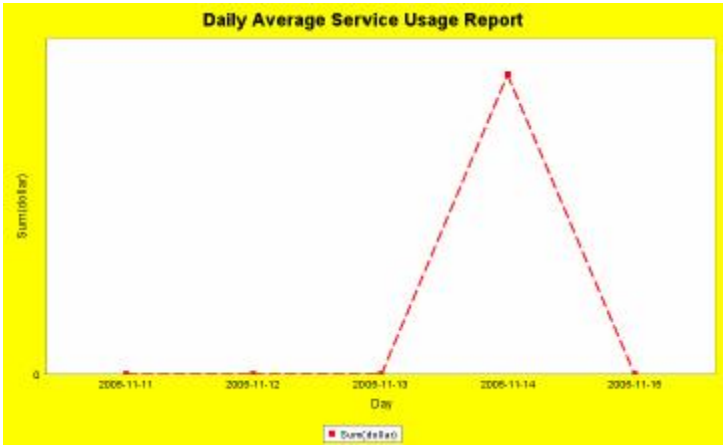


Figure 2-115 Daily Average Service Usage Report (Graph)

III. Monthly Account Quantity Statistics Report

This report makes statistics on the monthly number of valid or new account users (prepaid or ordinary) and services (subscribed by users), and displays the trend of the number of users and services in a plot chart with time as x-axis and number as y-axis.

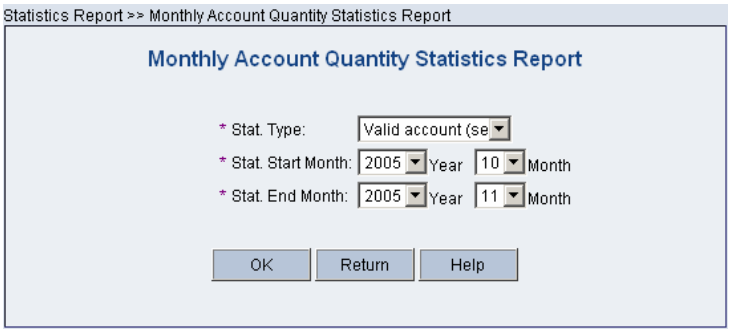

Statistics Report >> Monthly Account Quantity Statistics Report
Monthly Account Quantity Statistics Report
* Stat. Type: Valid account (se
* Stat. Start Month: 2005 Year 10 Month
* Stat. End Month: 2005 Year 11 Month
OK
Return
Help

Figure 2-116 Monthly Account Quantity Statistics Report

The statistics conditions are explained as follows:

Stat. Type: Includes Valid account (service) and New account (service).

- The valid accounts refer to all valid accounts within the statistics period (including those cancelled before the end month).
- The valid services refer to all valid services within the statistics period (including those cancelled before the end month).

The new accounts and services refer to the accounts and services added within the statistics period.

Caution:

- By default, the statistics results are displayed by month. Each row of the statistics data represents the month, the number of prepaid accounts, the number of ordinary accounts and the number of services respectively.
- This report does not count the card users and their used services.

After selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-117 pops up.

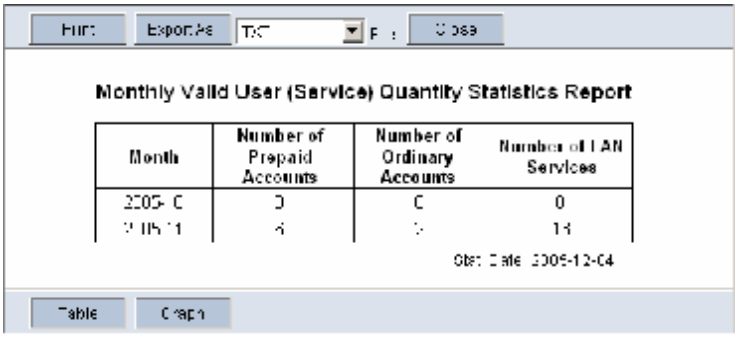


Figure 2-117 Monthly Valid User (Service) Quantity Statistics Report (table)

You can click <Table> or <Graph> at the bottom to refresh the statistics report and switch the format of the displayed results between table and graph.

One example of the Monthly Account Quantity Statistics Report displayed in graph is shown in Figure 2-118.

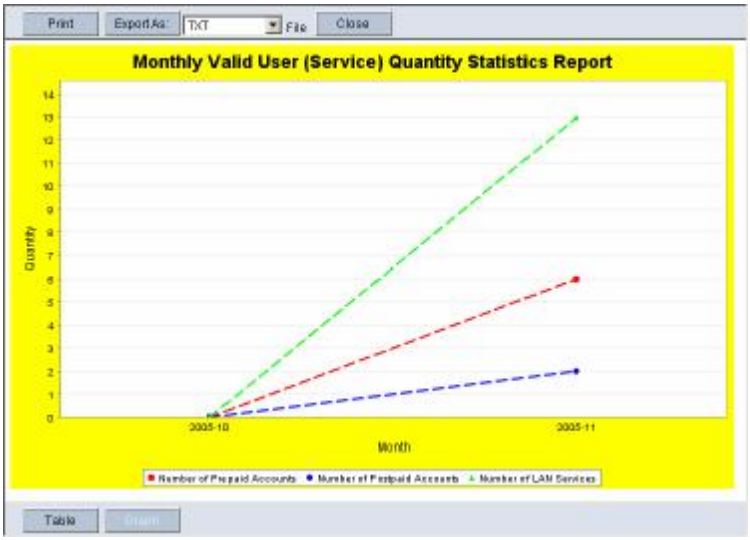


Figure 2-118 Monthly Valid User (Service) Quantity Statistics Report (Graph)

IV. Single User Based Monthly Expenditure Statistics Report

This report makes statistics on the monthly expense of a single user. The statistics include user name, average expense, maximum expense and minimum expense.

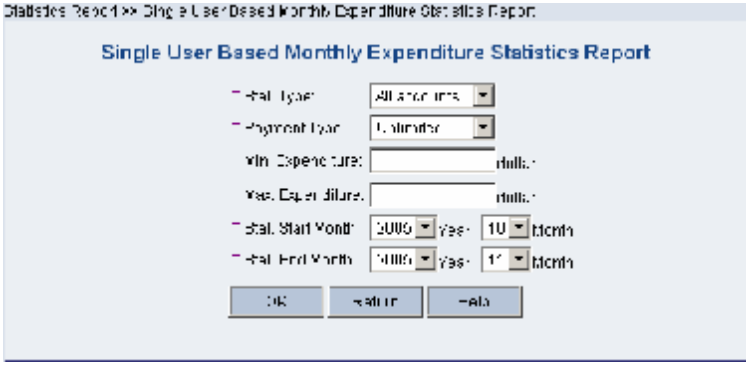


Figure 2-119 Single User Based Monthly Expenditure Statistics Report

For the explanations of the related statistics conditions, refer to online helps.

Min. Expenditure and Max. Expenditure: Used to set the expense range. For example, if you input **100** and **1000** in the two fields respectively, the related information of users with the expense between 100 dollars and 1000 dollars will be displayed. If both the fields are empty, it means the two parameters are not limited.

After inputting and selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-120 pops up.

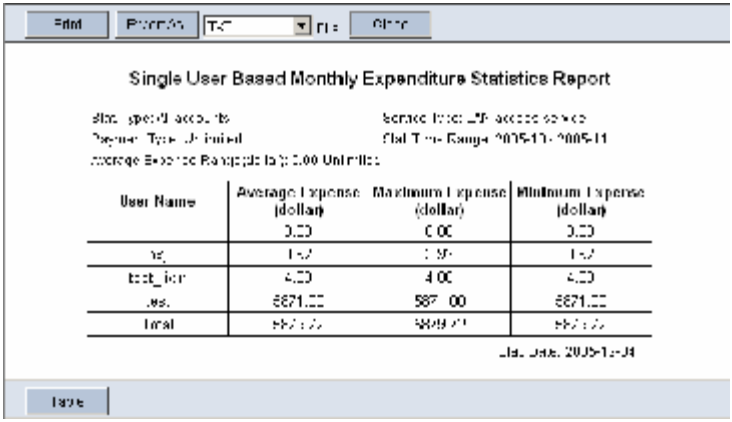


Figure 2-120 Single User Based Monthly Expenditure Statistics Report

Click <Table> at the bottom to refresh the statistics results.

V. Monthly Average Expenditure Distribution Statistics Report

This report makes statistics on the distribution of monthly average expenses of users, and thus you can learn the distribution of users in different segments of expense.

Define several segments of expense first. Get the total expenses of users from the start month to the end month. Divide the result by the number of months with expenses (between the start month and the end month) to get the monthly average expense. The statistics results displayed in a table provide the average expense segments and the number of users corresponding to the average expense segments. The statistics results can also be displayed in a bar chart with segment as x-axis and number as y-axis.

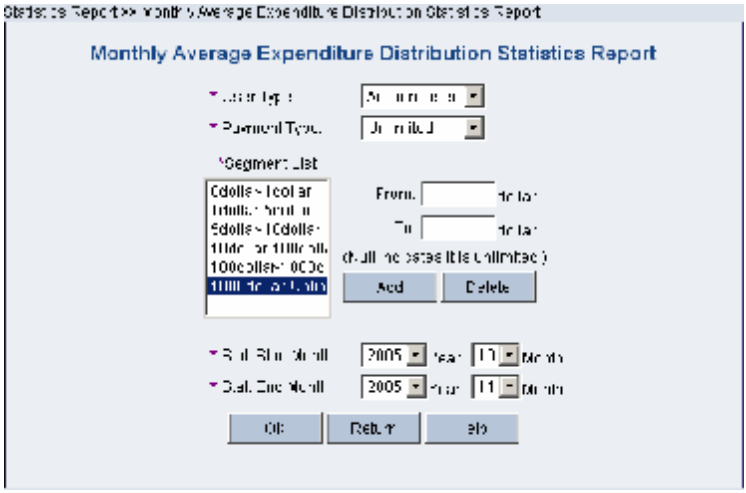


Figure 2-121 Monthly Average Expenditure Distribution Statistics Report

For the explanations of the related statistics conditions, refer to online helps.

After inputting and selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-122 pops up.

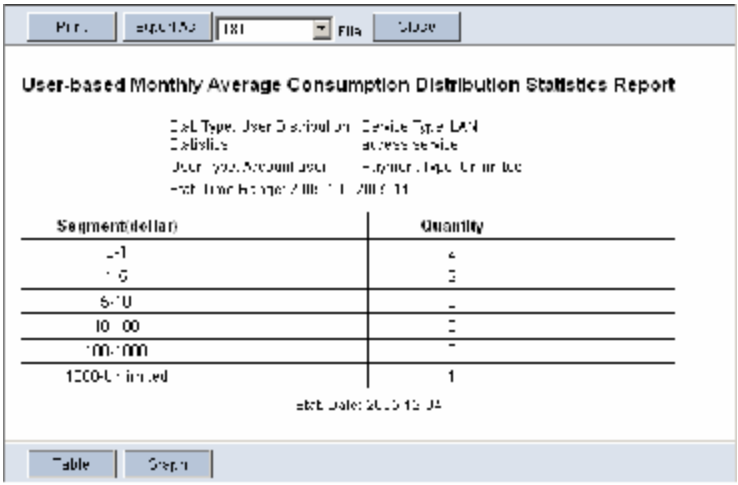


Figure 2-122 User-based Monthly Average Consumption Distribution Statistics Report

You can click <Table> or <Graph> at the bottom to refresh the statistics report and switch the format of the displayed results between table and graph.

The user-based monthly average consumption distribution statistics report displayed in graph is shown in Figure 2-123.

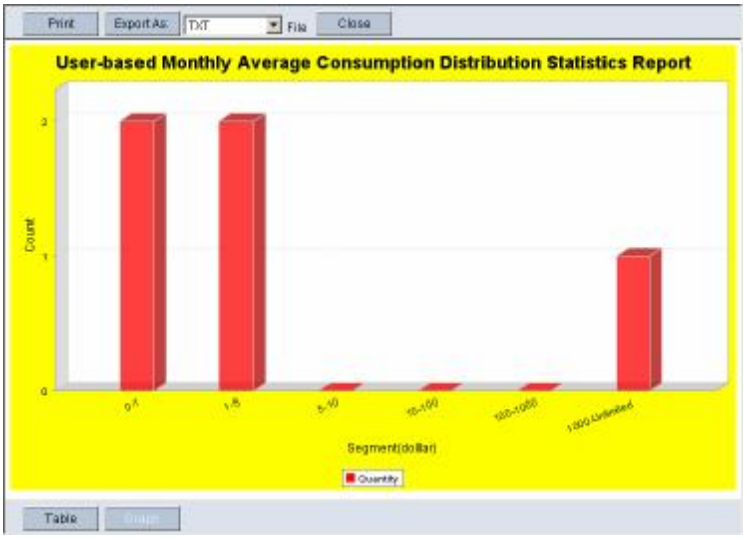


Figure 2-123 User-based Monthly Average Consumption Distribution Statistics Report (Graph)

VI. Monthly Payable Charge and Payment Comparison Statistics Report

The report makes statistics on the monthly payable charges and payments of all users, and displays the results in a plot chart.

The payable charge refers to all used money in the payable bill. The payment refers to all money in the paid bill. The payable charge is based on the billing date. For example, if the accounting period for a service is due on June 20, and the billing date is the fifth day of each month, the bill will be settled on July 5 and the payable charge for this bill will be counted as that on July.

Caution:

- Suppose a bill is settled but not paid (payable bill) after the period of time set by the Bill Details Saving Time parameter, and the paid bills of this month have been cleared by the system already. In this case, when the system makes statistics on the payable charge and the payment regularly, the data of this month will not be refreshed. That is, even if the payable bill is paid later, the payment will not be reflected in the statistics report.
- If a user is cancelled forcibly, its nonpayment bills will not be paid, and thus the payable charge will not be reflected in the statistics report.
- The bills for prepaid users will be changed to the paid state when they are being settled.

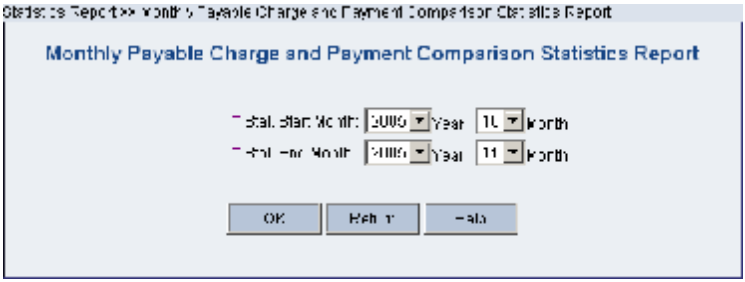


Figure 2-124 Monthly Payable Charge and Payment Comparison Statistics Report

After inputting and selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based

on the specified conditions. At last, a page shown in Figure 2-125 pops up.

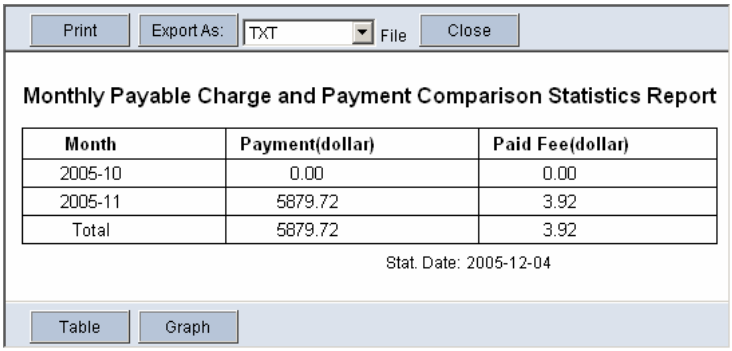


Figure 2-125 Monthly Payable Charge and Payment Comparison Statistics Report

You can click <Table> or <Graph> at the bottom to refresh the statistics report and switch the format of the displayed results between table and graph.

The monthly payable charge and payment comparison statistics report displayed in graph is shown in Figure 2-126.

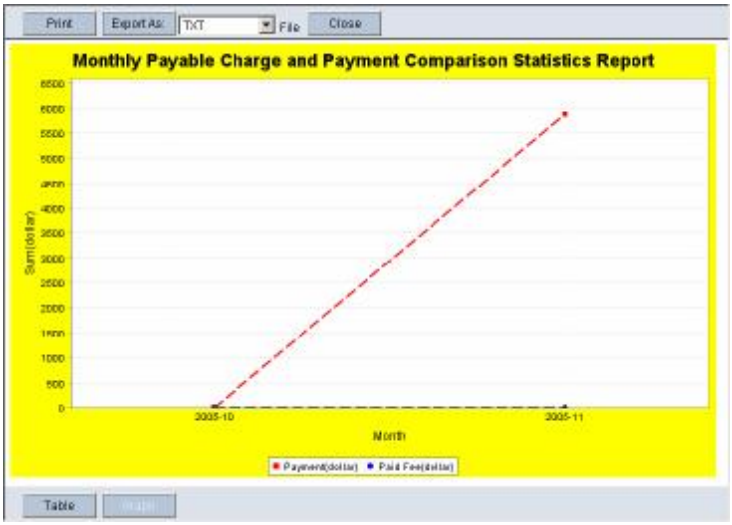


Figure 2-126 Monthly Payable Charge and Payment Comparison Statistics Report (Graph)

VII. Hourly Average Online Users Statistics Report

The report makes statistics on the number of hourly online users. CAMS provides a function to count the average number of hourly online users, thus enabling you to learn if a certain period is busy or not. The trend of the average number of online users is displayed in a plot chart with time as x-axis and number as y-axis.

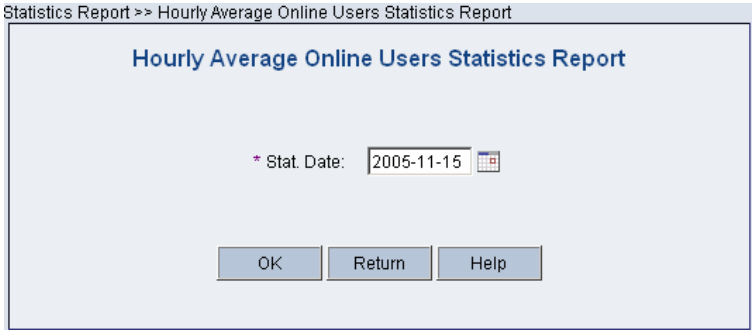


Figure 2-127 Hourly Average Online Users Statistics Report

For the explanations of the related statistics conditions, refer to online helps.

Caution:

The hourly average online users are calculated in this way: The system makes statistics on the number of online users every 15 minutes. After an hour, it divides the total number of online users by 4.

After selecting proper statistics conditions, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-128 pops up.

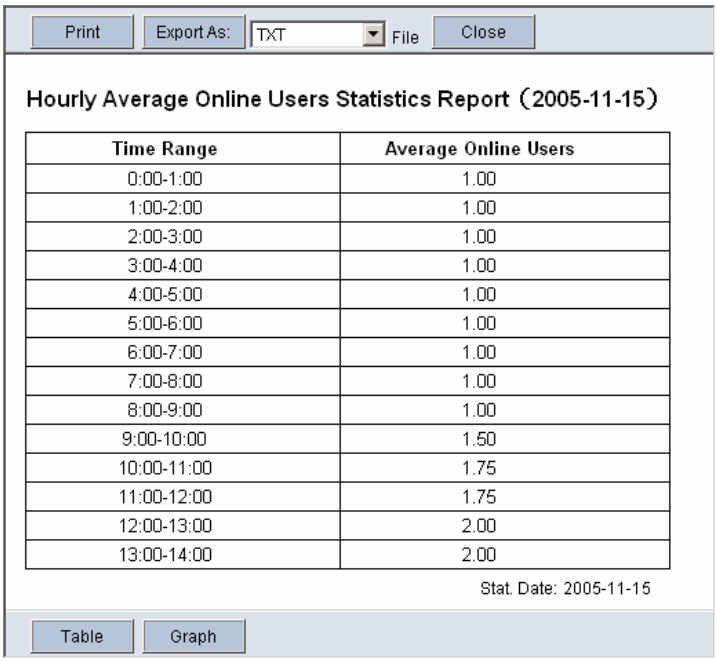


Figure 2-128 Hourly Average Online Users Statistics Report

You can click <Table> or <Graph> at the bottom to refresh the statistics report and switch the format of the displayed results between table and graph.

The hourly average online users statistics report displayed in graph is shown in Figure 2-129.

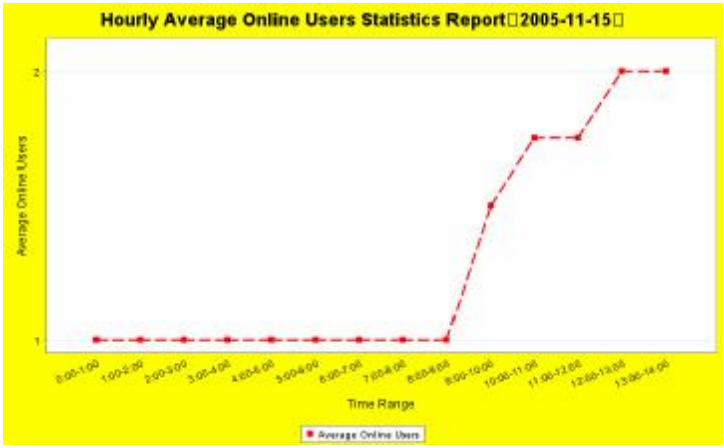


Figure 2-129 Hourly Average Online Users Statistics Report (Graph)

VIII. Operator Charge Record Statistics Report

This report makes statistics on the charge operations performed by each operator within a period of time.

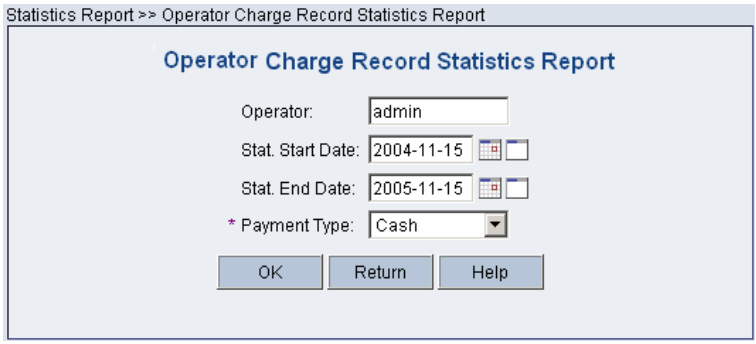


Figure 2-130 Operator Charge Record Statistics Report

For the explanations of the related statistics conditions, refer to online helps.

After inputting and selecting proper parameters, click <OK>, and the system begins to perform statistics and analysis based on the specified conditions. At last, a page shown in Figure 2-131 pops up.

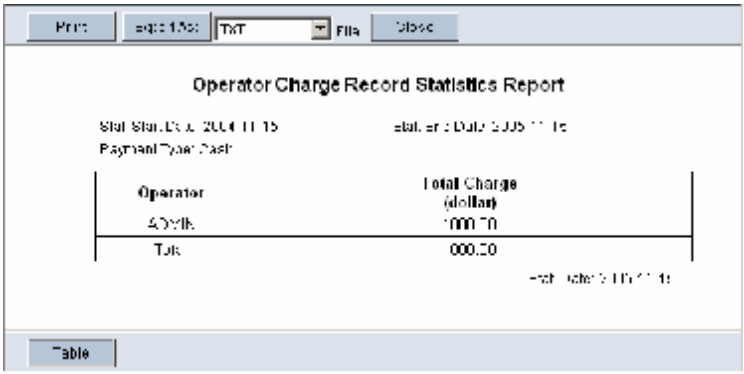


Figure 2-131 Operator Charge Record Statistics Report

2.9 User Self-service

This section introduces related service operations on the CAMS Self-service Platform. These operations enable the end users to manage and control their own accounts or cards conveniently to achieve real autonomous management.

Launch IE in Windows and input the IP address and port of the CAMS Self-service Platform at the address bar. For example, http://10.110.89.67/selfservice, and this indicates that the default port 80 is used here. If another port is used (8180 for example), you need to input http://10.110.89.67:8180/selfservice at the address bar and enter the [CAMS Self-service Platform] page shown in Figure 2-132.

Figure 2-132 CAMS Self-service Platform

The [CAMS Self-service Platform] page provides the following functions:

- An end user without account can click <User Preregistration> for preregistration. (The prerequisite is that you need to select **Permit** from the Self Preregister drop-down list on the [Service Parameters Configuration] page on the configuration console.)
- An account user who forgets password can click <Forget Password> to enter the [Get User Password] page. After inputting the user name of the account, the system will send the password to the registered e-mail box. (The prerequisite is that you need to enable the function of password retrieval through mails after selecting [System Management/Mail Configuration] on the configuration console.)

- An end user (either an account user or a card user) can input the corresponding user name and password to login, and query and maintain its user and service information.

2.9.1 User Preregistration

To reduce the input workload and improve the efficiency of operators when new account users are added, the system provides the preregistration function. That is, after the end users input the basic and additional information of the account to be applied for, the operator can turn the preregistered users to registered users. To do this, the operator only needs to set some related service information, thus simplifying operations.

On the [CAMS Self-service Platform] page, click <User Preregistration> to enter the [User Preregistration] page, as shown in Figure 2-133.

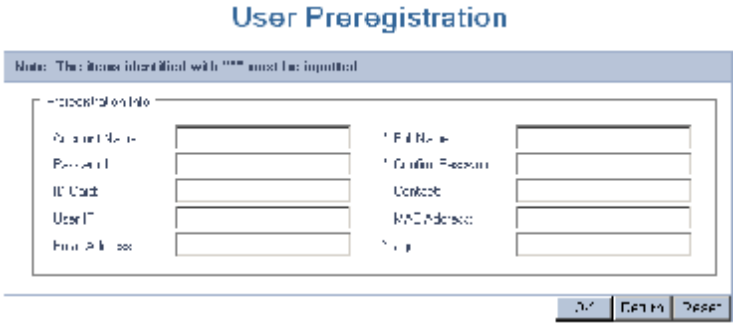


Figure 2-133 User Preregistration

The parameters of Account Name, Full Name, Password, ID Card, Contact, Email Address are the basic information and usually

remain unchanged. The other parameters indicate the additional information for the user and vary with actual conditions.

Input proper parameters, and click <OK> to complete the preregistration. If the operation succeeds, a page shown in Figure 2-134 pops up.

The account user preregistration succeeds.
Account Name:zhangjun
Note: This preregistration account user expires on 2005-11-30. Please register it before it expires.
OK

Figure 2-134 Page prompting that the account preregistration succeeds

You must register the preregistered account before the expiry date prompted on the page. Otherwise, the preregistered account will be deleted by the system automatically. The expiry date is later than the current date by the days specified by the Preregistration Information Saving Time parameter which you can modify on the [Service Parameters Configuration] page.

You can limit the number of accounts to be registered at the same IP address each day, thus preventing a lot of invalid accounts from being preregistered maliciously. To do this, you can select [System Management/System Configuration] to enter the [System Configuration] page. Click <Modify> of the Service Parameters item to

enter the [Service Parameters Configuration] page. Then, modify the parameter of Same Address Preregistration Limit. To remove the limitation, you can set this parameter to be **–1**.

2.9.2 Query and Maintain User Information

The following will take account users for example. On the [CAMS Self-service Platform] page, input the correct user name and password, and click <Login> to enter the [Account User Info] page, as shown in Figure 2-135.

Figure 2-135 Account User Info

This page displays the basic user information and the subscribed service information.

With the menus on the left side, the end users can query related information and perform other operations:

- User Basic Information
- User Bill Information

- LAN Access Details
- User Payment Records
- User Information Maintenance
- Change Password
- Recharge
- Logout

Among them, the User Information Maintenance operation is only applicable to account users. The User Bill Information operation is only applicable to ordinary users.

The following details on these operations.

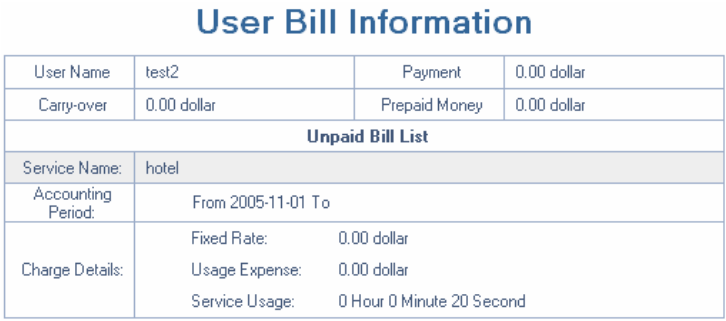
I. User Basic Information

An end user enters the [Account User Info] page after login. The user can also click [User Basic Information] on the left side to enter the same page, as shown in Figure 2-135. The basic user information and the subscribed service information are displayed.

II. User Bill Information

Ordinary account users can query their current fee information.

Click [User Bill Information] on the left side to enter the [User Bill Information] page, as shown in Figure 2-136.



User Bill Information

User Name	test2	Payment	0.00 dollar
Carry-over	0.00 dollar	Prepaid Money	0.00 dollar
Unpaid Bill List			
Service Name:	hotel		
Accounting Period:	From 2005-11-01 To		
Charge Details:	Fixed Rate: 0.00 dollar Usage Expense: 0.00 dollar Service Usage: 0 Hour 0 Minute 20 Second		

Figure 2-136 User Bill Information

III. LAN Access Details

Users can query the access details of the subscribed service within a specified period of time. Click [LAN Access Details] on the left side to enter the [LAN Access Details] page, as shown in Figure 2-137.

LAN Access Details

Query Period From: 2006-07-09 To: 2006-08-08 Service: month-zx Query

Start Time	Duration	Input Bytes	Output Bytes	Fee(dollar)	Details
2006-08-07 20:32:17	1 Minute 16 Second	NA	NA	NA	Details
2006-08-07 20:34:04	7 Second	NA	NA	NA	Details
2006-08-07 20:36:25	19 Second	NA	NA	NA	Details
2006-08-07 20:36:53	56 Second	NA	NA	NA	Details
2006-08-07 20:37:59	3 Second	NA	NA	NA	Details
2006-08-07 20:39:48	4 Second	NA	NA	NA	Details
2006-08-07 20:41:40	13 Hour 15 Minute 26 Second	NA	NA	NA	Details
2006-08-08 10:11:07	3 Minute 56 Second	NA	NA	NA	Details
2006-08-08 10:15:19	2 Minute 4 Second	NA	NA	NA	Details
2006-08-08 10:17:37	29 Second	NA	NA	NA	Details
2006-08-08 10:18:30	23 Second	NA	NA	NA	Details
2006-08-08 10:19:07	8 Minute 35 Second	NA	NA	NA	Details
2006-08-08 11:04:13	2 Minute 0 Second	NA	NA	NA	Details
2006-08-08 11:09:43	19 Second	NA	NA	NA	Details
2006-08-08 11:16:08	13 Minute 29 Second	NA	NA	NA	Details
2006-08-08 11:29:46	46 Second	NA	NA	NA	Details
2006-08-08 11:40:59	49 Minute 43 Second	NA	NA	NA	Details
2006-08-08 12:37:01	16 Second	NA	NA	NA	Details
2006-08-08 12:38:43	1 Hour 25 Minute 3 Second	NA	NA	NA	Details
2006-08-08 14:16:42	4 Hour 31 Minute 46 Second	NA	NA	NA	Details
Total:	20 Hour 37 Minute 0 Second	NA	NA	NA	

Figure 2-137 LAN Access Details

You can select different periods and services and click <Query> to query the access details. You can click <Details> of each entry to view its details.

IV. User Payment Records

Click [User Payment Records] on the left side to enter the [User Payment Records] page, as shown in Figure 2-138.

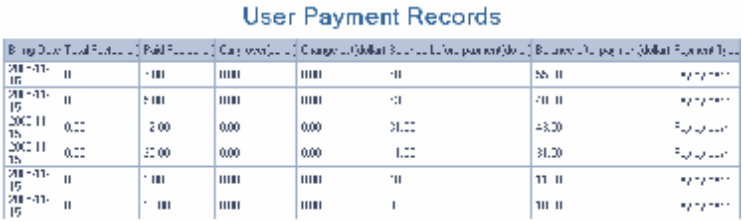


Figure 2-138 User Payment Records

The user payment history records are displayed on the page.

& Note:

Figure 2-138 shows the [User Payment Records] page for ordinary account users, and it is slightly different from the page for prepaid account users.

V. User Information Maintenance

Click [User Information Maintenance] on the left to enter the [User Information Maintenance] page, as shown in Figure 2-139.

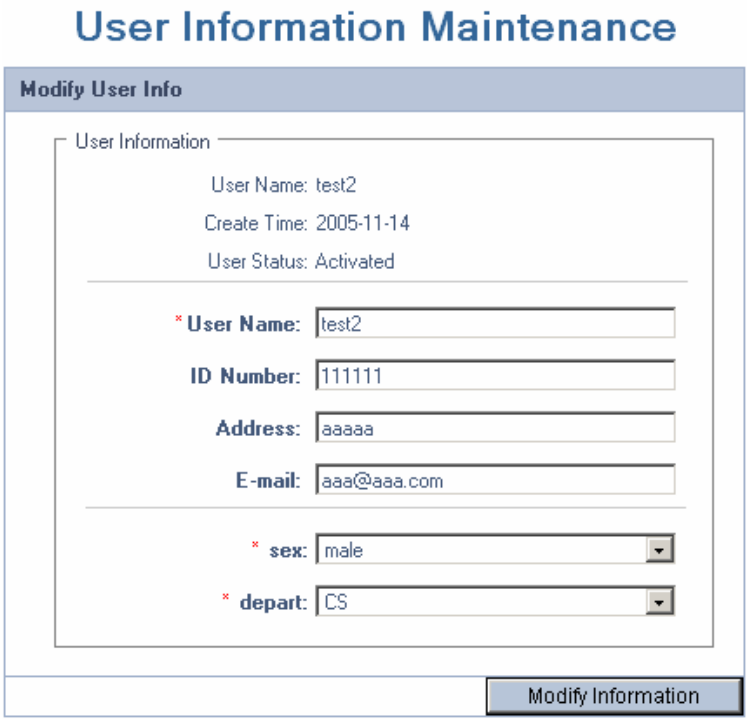


Figure 2-139 User Information Maintenance

After modifying the user information, click <Modify Information> to complete the operation.

& Note:

Select [System Management/System Configuration] to enter the [System Configuration] page. Click <Modify> of the Service Parameters item to enter the [Service Parameters Configuration] page. If you select **Prohibit** from the Self Modify User Info drop-down list, the User Information Maintenance link will not be available.

VI. Change Password

Click [Change Password] on the left side to enter the [Change Password] page, as shown in Figure 2-140.

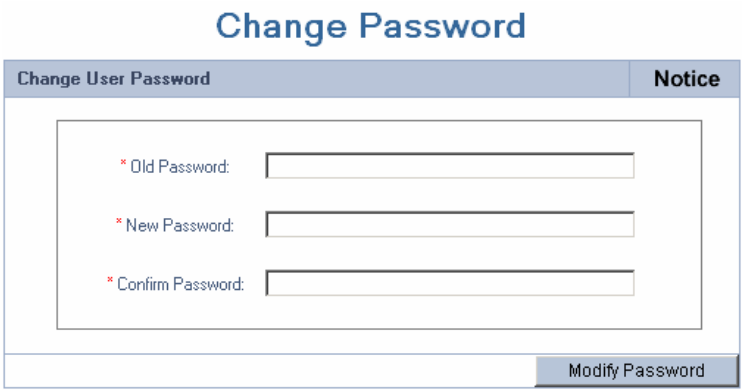


Figure 2-140 Change Password

When you position the cursor over each field, its prompt pops up automatically. On the CAMS Self-service Platform, you can find a lot of similar prompts.

When you position the cursor over the “Notice” at the upper right corner, the notice for changing password will be displayed automatically to facilitate the operation.

After inputting the old password, new password and confirm password, you can click <Modify Password> to complete the operation.

VII. Recharge

Except the monthly payment card users, all other users (account users, prepaid card users) can perform recharging operations with recharge cards.

Click [Recharge] on the left side to enter the [Recharge] page, as shown in Figure 2-141.

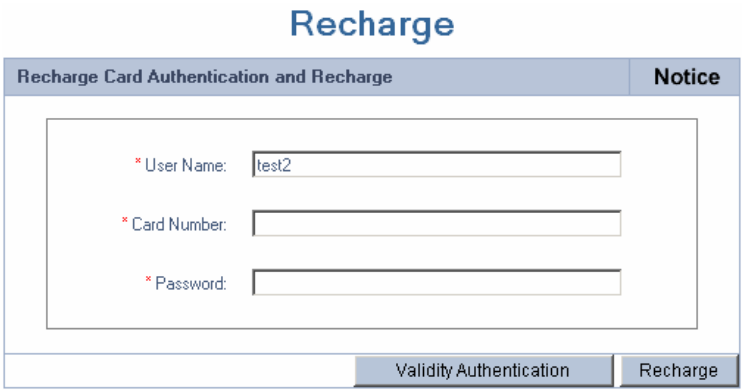


Figure 2-141 Recharge

You may perform two operations on this page: validity authentication and recharge.

Input the card number only and click <Validity Authentication>, and the system will display the authentication result shown in Figure 2-142.

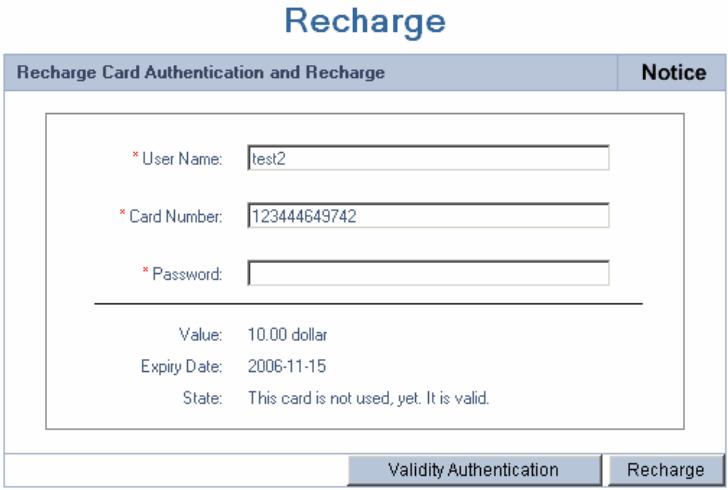


Figure 2-142 Recharge card validity authentication

You must input the user name, card number and password. Then, click <Recharge> to complete the operation.

& Note:

You can modify the user name to recharge for other users on the page shown in Figure 2-142.

VIII. Logout

Click [Logout] on the left side, and you can exit the current page and return to the login page.

Besides, if users do not perform any operations for 10 minutes after login, the system will log them out automatically. In this case, if users want to continue related operations, they must login again.

Chapter 3 Routine Maintenance

3.1 Overview

Routine maintenance refers to the description of frequently used operations, troubleshooting, data backup, and other operations of the device in normal running status. During system running, the maintenance personnel need to maintain and check devices regularly. They can check the system alarm information and operation information such as various logs. Besides, they can analyze system operations, detect problems, and solve them in time to ensure the reliable running of the system. The following contents provide some suggestions of routine maintenance on devices, as well as troubleshooting and FAQ.

3.2 Maintenance Suggestions

Caution:

You are not recommended to modify the system time. SQL Server may obtain the system time at any time to execute its own maintenance tasks. Besides, CAMS also use the system time when maintaining user online information and charging users, and the jobs that are executed regularly must trace the system time promptly. Therefore, if the system time is modified, users may not login/logout normally, accounting errors may occur, and even some unexpected results such as that CAMS is down may be caused.

The specific maintenance suggestions are shown in Table 3-1.

Table 3-1 Maintenance suggestions

Period	Maintenance requirement	Operation
Daily	View CAMS running status	Check whether the CAMS Monitor service is started in Windows Services (Local). Alternatively, monitor the CAMS running status using the System Monitor function provided by CAMS.
	View SQL Server running status	Check whether the MSSQLSERVER service is started in Windows Services (Local).
	View the running status of Tomcat	Check whether the CAMS Web Server service is started in Windows Services (Local).
	View CAMS logs	Query log information on the [System Log Management] page which you can enter by selecting [System Management/Log Query/System Log].
	View the memory and CPU usage	Check the memory and CPU usage in Windows Task Manager. If either of them is higher than 90% for a long period, the hardware may need upgrade.

Period	Maintenance requirement	Operation
Weekly	Export database backup files	Export the database backup files to tapes or other storage devices in time.
	Backup CAMS running logs	Backup the CAMS running logs to tapes or other storage devices.
	Clean equipment room	Mainly includes 6S (seiri, seiton, seiso, seiketsu, shitsuke, and safety).
Monthly	Clean disk spaces	Check the disk usage in My Computer. If it is higher than 80%, invalid files on the disk must be cleared immediately. The log files that have been backed up and all other invalid files must be deleted.
	Delete invalid operators	Check the configuration console for invalid operators. If yes, delete them.
Regularly	Change password	Change the password of the Windows administrator to ensure that the operating system runs securely.
	Update system patch and antivirus software	Check whether the operating system and the software (such as IE and Outlook) are updated timely. Besides, the virus definition file of the antivirus software must be updated timely.